

GLASGOW CORPORATION.

REPORT

OF THE

MEDICAL OFFICER OF HEALTH

OF THE

CITY OF GLASGOW.

1904.

MEDICAL RESEARCH
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REPORT OF THE MEDICAL OFFICER OF HEALTH.

1904.

SECTION I.

Under the revised instructions of the Local Government Board regarding the Annual Reports of Medical Officers, Article (a) requires him to submit "A general account of the influences and conditions injurious or dangerous to the health of the burgh, and of the measures that, in his opinion, should be adopted for its improvement."

A distinction is here quite reasonably drawn between the conditions and influences which affect health, because, while conditions may, and, indeed, usually are, quite local in their effect—and therefore more definitely related to the physical circumstances which distinguish the wards from each other—there are certain general influences, of which atmospheric changes are the type, which are fairly uniform in their operation. Illustration of this is found if we contrast wet and dry years with each other, or, again, years in which the mean temperature of corresponding periods varies, and place both in comparison with the death-rate from selected groups of diseases.

In the following Table, for example, the rainfall and mean temperature of each month in 1903 and 1904 are stated. While the mean temperature for the whole year shows little variation, it will be seen that in February and March, 1904, the temperature was 6° and 2° respectively below the mean for these months in 1903, and that from April till the end of the year it was, with the exception of May and November, higher than 1903. These two conditions—increased cold in the winter months and increased heat in the summer and autumn months—are notoriously reflected in an increasing liability to lung disease on one hand and to diarrhoeal affections on the other, and if we turn to Table III. (p. 19) it will be seen that the death-rates from these groups of diseases are both increased during the year under review.

TABLE A.
COMPARATIVE STATEMENT OF RAINFALL AND MEAN TEMPERATURE for each Month
1903-1904.

	1903.		1904.	
	Mean Temperature.	Rainfall in Inches.	Mean Temperature.	Rainfall in Inches.
January, - -	37°·3	7·28	40°·3	3·41
February, - -	43°·5 } 40°·8	6·21 } 20·42	37°·2 } 38°·8	2·28 } 7·08
March, - -	41°·5	6·93	38°·9	1·39
April, - -	42°·2	1·55	45°·2	4·03
May, - -	49°·5 } 48°·8	2·59 } 6·04	48°·8 } 49°·6	3·20 } 9·03
June, - -	54°·6	1·90	54°·7	1·80
July, - -	56°·2	3·25	57°·0	3·65
August, - -	54°·6 } 54°·5	5·94 } 13·27	56°·3 } 55°·5	3·93 } 11·09
September, -	52°·8	4·08	53°·2	3·51
October, - -	48°·1	8·29	48°·8	1·31
November, -	43°·1 } 42°·7	2·54 } 13·59	42°·3 } 43°·7	1·91 } 6·54
December, -	37°·0	2·76	40°·1	3·32
Year, - -	46°·7	53·32	46°·9	33·74

In the following Table (B) the departure of the monthly maximum and minimum shade temperature and of the monthly rainfall from the average of 36 years is shown:—

TABLE B.

ABSTRACT of METEOROLOGICAL OBSERVATIONS taken at GLASGOW OBSERVATORY during 1904.

MONTHS.	TEMPERATURE				RAINFALL.		
	Highest Temperature in Shade.	Lowest Temperature in Shade.	Mean Temperature for Month.	Departure from Average of 36 Years.	No. of Days it fell.	Amount Collected in inches.	Departure from average of 36 Years.
January, ...	49°·9	31°·1	40°·3	+ 1°·9	21	3·41	- 0·34
February, ...	47°·8	27°·0	37°·2	- 1°·8	17	2·28	- 0·77
March, ...	53°·1	29°·6	38°·9	- 1°·3	14	1·39	- 1·15
April, ...	60°·2	33°·1	45°·2	+ 0°·5	24	4·03	+ 2·07
May, ...	69°·1	36°·6	48°·8	- 0°·6	18	3·20	+ 0·76
June, ...	75°·7	44°·2	54°·7	- 0°·4	11	1·80	- 0·96
July, ...	72°·0	47°·2	57°·0	- 0°·5	15	3·65	+ 0·54
August, ...	71°·6	42°·7	56°·3	- 0°·4	22	3·93	+ 0·06
September, ...	65°·7	39°·0	53°·2	+ 0°·2	11	3·51	- 0·13
October, ...	57°·9	34°·9	48°·8	+ 2°·0	15	1·31	- 2·48
November, ...	55°·0	23°·5	42°·3	+ 0°·2	18	1·91	- 1·81
December, ...	54°·0	21°·9	40°·1	+ 1°·4	19	3·32	- 0·72
Total, ...	...	...	...	...	205	33·74	...

The aggregate hours of bright sunshine recorded for the months of May, June, August, September, October, November, and December was above the mean for 24 years; while for the remaining months of January, February, March, April, and July it was below.

It will be convenient here to present a summary of the main facts concerning the vital statistics of the year:—

	Registrar-General's Estimate.		Medical Officer's Estimate.	
Population, ...	...	798,357	...	785,465
Number of persons per acre.	...	62·9	...	61·9
Total number of deaths registered, ...	...	...	...	15,414
Number, after correction for Institutions, &c., ...	...	...	...	14,794
Death-rate— <i>All Causes</i> , ...	...	...	...	18·8 per 1,000
Births registered, ...	...	24,754	...	...
Number, after correction, ...	...	24,713	...	...
Birth-rate, ...	...	...	...	31·5 „
Infantile death-rate, ...	...	145 per 1,000 births.	...	...

Death-rate from zymotic diseases, ...	2·5 per 1,000	} 18·8
" tubercular diseases—		
(a) Phthisis, ... 1·6	} 2·9	
(b) Others, ... 1·2		
" diseases of respiration, ...	4·0	
" " circulatory organs, ...	1·6	
" " nervous system, ...	1·7	
" cancer (malignant disease), ...	·7	
" septic diseases, ... 1	} 1·2	
" violence, ...		
" premature births, ... 6		
" all other causes, ...	4·2	

POPULATION.

The Registrar-General estimated the population of Glasgow at the middle of 1904 at **798,357**, or an increase of 11,460 on his estimate for the year 1903. This is based on the rate of increase during the intercensal period 1891-1901, but it exceeds by 12,892 the estimate based on the return of inhabited houses for the year under review.

The number of tenanted houses on 1st June, 1904, was 163,002. Deducting $1\frac{1}{2}$ per cent. (2,445 houses), representing those not occupied, and applying the factor 4·769, which indicates the average number of persons per house at the 1901 Census, we get 765,696 as the number of persons occupying these houses. Adding to this 18,528 (the number of inmates in Institutions, as ascertained by special census) and 1,241 (the population of the Harbours of Glasgow as at the Census of 1901), the total population as at 1st June, 1904, may be estimated at 785,465.

We have thus an increase in inhabited houses of 559, and in population of 2,663. This falls short of the Registrar-General's estimate by 13,579,* and represents a rate of increase for the year of only ·3 per cent., as compared with 1·5 per cent., which is represented by the Registrar-General's figures.

It is but a further illustration of the divergence indicated in submitting the corresponding estimate for last year.

The increase during last decade was equal to an addition of fully 10,000 persons annually; last year this fell to 5,143; and in the present year it is less by 7,914 than the excess of births over deaths during 1903. In other words, the population is not at the moment gaining any addition from immigration, and is losing its natural growth by the extent indicated.

In this connection it is of interest to recall the experience of past decades, and particularly of those between 1871-91, in which the natural increase amounted to 122,971, while the actual increase was only 73,969, and the surplus of 49,002 lives was lost to the City through overflow into the surrounding districts. The following Table is taken from the Census (Medical Officer's) Report, 1901, and the contrast in the several decades will be found by comparing the columns marked "Difference representing Natural Increase" and "Census Increase" in each:—

Census Period.	Births.	Deaths.	Difference representing Natural Increase.	Census Increase.
1861-71, - - -	178,582	132,260	46,522	87,532
1871-81, - - -	200,766	143,116	57,650	19,674
1881-91 (Old Glasgow), - -	196,767	131,446	65,321	54,295
1892-1901† (Greater Glasgow),	218,269	142,974	75,295	103,639

* See footnote to Table C.

† The details for April-December, 1891, are not available.

The following Table gives the number of inhabited houses and the estimated population (exclusive of inmates of Institutions and persons on board ships in the Harbours) in the Municipal Wards for 1904, with the increase or decrease in each :—

TABLE C.

GLASGOW, 1904.—INHABITED HOUSES as per ASSESSOR'S RETURN, and ESTIMATE of POPULATION for each MUNICIPAL WARD.

MUNICIPAL WARDS.	INHABITED HOUSES.				POPULATION.			
	1903.	1904.	Decrease.	Increase.	1903.	1904.	Decrease.	Increase.
1. Dalrnarnock, -	11,220	11,176	44	...	50,859	50,655	204	...
2. Calton, - -	8,532	8,315	217	...	38,960	37,966	994	...
3. Mile-end, - -	9,470	9,473	...	3	43,169	43,180	...	11
4. Whitevale, - -	7,152	7,006	146	...	33,778	33,087	691	...
5. Dennistoun, -	7,130	7,512	...	382	32,509	34,247	...	1,738
6. Springburn, -	8,674	8,869	...	195	41,360	42,287	...	927
7. Cowlairst. - -	6,091	6,205	...	114	29,781	30,337	...	556
8. Townhead, - -	8,467	8,333	134	...	39,989	39,354	635	...
9. Blackfriars, -	4,740	4,619	121	...	23,087	22,498	589	...
10. Exchange, - -	412	413	...	1	2,232	2,238	...	6
11. Blythswood, -	658	638	20	...	3,596	3,485	111	...
12. Broomielaw, -	1,594	1,547	47	...	8,337	8,091	246	...
13. Anderston, -	6,249	5,184	65	...	29,452	29,142	310	...
14. Sandyford, - -	5,547	5,434	113	...	26,488	25,944	544	...
15. Park, - -	5,088	5,143	...	55	24,953	25,222	...	269
16. Cowcaddens, -	8,523	8,146	377	...	39,960	38,191	1,769	...
17. Woodside, - -	9,987	9,858	129	...	45,653	45,060	593	...
18. Hutchesontown, -	9,374	9,261	113	...	41,974	41,465	509	...
19. Gorbals, - -	7,518	7,524	...	6	36,537	36,563	...	26
20. Kingston, - -	7,310	7,351	...	41	34,762	34,957	...	195
21. Govanhill, - -	7,420	7,442	...	22	33,787	33,884	...	97
22. Langside, - -	6,489	7,154	...	665	29,625	32,660	...	3,035
23. Pollokshields. -	3,302	3,448	...	146	16,984	17,732	...	748
24. Kelvinside, -	3,660	3,861	...	201	18,854	19,888	...	1,034
25. Maryhill, - -	7,836	8,090	...	254	36,384	37,563	...	1,179
Institutions, -	...	...	...	...	18,491*	18,528	...	37
Harbour, - -	...	...	...	...	1,241	1,241	...	...
CITY, - -	162,443	163,002	...	559	782,802	785,465	...	2,663

* This figure exceeds that formerly given as the "Institutional" population by the addition of 692 persons resident in the New Century and Exhibition Hotels in 1903, but which were not opened at the Census, and their figures only obtained for the first time in 1904.

The main decrease is, as formerly, in the Central Wards of the City; but it will be seen that it is present also in Dalmarnock, Calton, and Whitevale—and which latter, at least, must be viewed in connection with the building extensions which have taken place beyond the city boundary in the direction of Shettleston and Tolleross. I have again asked Mr. Henry if he can supplement his information with a return of the unoccupied houses of one and two apartments in the several wards; and Mr. Young has been good enough to institute an enquiry into the main trend of the traffic in the early morning cars, with the view of determining whether much of the diminishing rate of increase can be explained by an increasing tendency of any section of the population to live beyond the city boundary. There seems, unfortunately, however, some reason to apprehend that depression in trade also contributes to the lowered rate of increase.

For the purpose of calculating rates applicable to the whole City, the Registrar-General's population will continue to be used.

The following Table (I.) shows the acreage and number of inhabited houses in each ward at the Census and in 1904, together with the increase or decrease in each, and the density for both years:—

TABLE I.—ACREAGE, INHABITED HOUSES, and PERSONS per ACRE in each MUNICIPAL WARD in 1904; also the POPULATION and PERSONS per ACRE at the CENSUS of 1901, showing the PERCENTAGE INCREASE or DECREASE in the POPULATION during the Intervening Period.

	MUNICIPAL WARDS.	Acreage, 1904.	Inhabited Houses, 1904.	POPULATION.						Persons per Acre (including Institutions and Shipping).	
				Census 1901.	Estimated, Middle of 1904.	Increase.	Decrease.	Increase per Cent.	Decrease per Cent.	Census 1901.	1904.
1.	Dalmarnock,	562	11,176	49,210	50,655	1,445	...	2.9	...	89	91
2.	Calton, ...	337	8,315	39,045	37,966	...	1,079	...	2.8	123	118
3.	Mill-end,	512	9,473	42,110	43,180	1,070	...	2.5	...	83	85
4.	Whitevale,	321	7,006	33,897	33,087	...	810	...	2.4	111	106
5.	Dennistoun,	718	7,512	30,482	34,247	3,765	...	11.0	...	45	50
6.	Springburn,	1,531	8,869	37,744	42,287	4,543	...	10.7	...	26	29
7.	Cowfairs,	865	6,205	26,597	30,337	3,740	...	12.3	...	31	35
8.	Townhead,	261	8,333	40,492	39,354	...	1,138	...	2.9	163	154
9.	Blackfriars,	146	4,619	24,333	22,498	...	1,835	...	8.2	173	160
10.	Exchange,	123	413	2,326	2,238	...	88	...	3.9	23	24
11.	Blythwood,	90	638	4,101	3,485	...	616	...	17.7	48	42
12.	Broomielaw,	104	1,547	9,633	8,091	...	1,542	...	19.1	102	93
13.	Anderston,	462	6,184	29,934	29,142	...	792	...	2.7	68	66
14.*	Sandyford,	138	5,434	26,449	25,944	...	505	...	1.9	192	189
15.	Park, ...	346	5,143	24,903	25,222	319	...	1.3	...	74	75
16.	Cowcaddens,	173	8,146	40,380	38,191	...	2,189	...	5.7	239	227
17.	Woodside,	283	9,858	45,447	45,060	...	387	...	0.9	161	159
18.	Hutchesontown,	224	9,261	42,284	41,465	...	819	...	2.0	189	185
19.	Gorbals,	243	7,524	35,750	36,563	813	...	2.2	...	151	154
20.	Kingston,	412	7,351	34,386	34,957	571	...	1.6	...	85	86
21.	Govanhill.	449	7,442	31,639	33,884	2,245	...	6.6	...	70	75
22.	Langside,	840	7,154	25,337	32,660	7,323	...	22.4	...	31	39
23.	Pollokshields,	1,353	3,448	15,317	17,732	2,415	...	13.6	...	11	13
24.	Kelvinside,	917	3,861	15,611	19,888	4,277	...	21.5	...	18	23
25.	Maryhill,	1,278	8,090	33,717	37,563	3,846	...	10.2	...	28	31
--	Institutions and Shipping,	...	...	20,588	19,769	...	819	...	...	...	...
	CITY, ...	12,688	163,002	761,712	785,465	23,753	...	3.0	...	60.1	61.9

SOURCES OF INCREASE.

The importance attaching to the variation in the estimates just given is increased when they are viewed in relation to the figures which express the natural growth of the population.

During the year the number of births (corrected) was 24,713 and of deaths 14,794, and the excess of births over deaths was 9,919.

This would represent 86·6 per cent. of the increase estimated by the Registrar-General to have occurred, and would leave a surplus of 1,541 persons to be explained by the excess of immigration over emigration. But on the inhabited-house estimate the increase (2,663) in population has been only one-third the natural growth, and affords further support to the opinion expressed last year that the overflow of population which was so marked a feature of the "eighties" has again become established.

The differences thus arising will be appreciated by comparing the rate of natural increase, shown in the third column, with the rates of increase of the Registrar-General's and Medical Officer's estimates respectively:—

		Registrar-General.	Medical Officer.	Natural Increase on Registrar-General's Population.
Population, 1903,	...	786,897	782,802*	—
1904,	...	798,357	785,465*	796,816
Increase,	...	11,460	2,663	9,919
Percentage Increase,		1·5	·3	1·2

By natural growth alone the population would have increased 1·2 per cent., and the Registrar-General's estimate assumes that this has been retained and the population further increased by a slight excess from surplus immigration, while the inhabited-house estimate suggests that the numbers added to the population during the year equal one-third only the surplus births as against one-half added during 1903.

MARRIAGES.

In 1904, 7,185 marriages were registered in Glasgow, as compared with 7,201 in 1903. These represent rates per thousand persons living of 9·0 and 9·2 respectively.

The rate is lower than any which has been registered since 1895.

GLASGOW.—MARRIAGE-RATE PER 100,000 LIVING FROM 1870.†

1870,	...	...	...	980	1896-1900,	...	...	...	989
1871-75,	...	...	...	992	1901,	...	...	...	926
1876-80,	...	...	...	901	1902,	...	...	...	938
1881-85,	...	...	...	937	1903,	...	...	...	915
1886-90,	...	...	...	884	1904,	...	...	...	900
1891-95,	...	...	...	895					

BIRTHS.

24,754 births were registered in Glasgow during the year 1904, but after deducting those born within the municipal area not belonging to Glasgow, and adding those born beyond the municipal area but belonging to Glasgow, there remains 24,713 births properly belonging to the City, which represents a birth-rate of 31·463 per 1,000 on the Medical Officer's estimate of the population, as compared with 25,000 births occurring in 1903, representing a rate of 32·042 for that year. After a partial but slight recovery in 1903, the birth-rate is now lower than any previously recorded, and represents a fall in the rate equal to 579 per million when compared with 1903.

* See footnote to Table C.

† The rates in these Tables are taken from the Registrar-General's Annual Reports and Summaries.

The birth-rate in several periods since 1871 has been as follows :—*

						Glasgow.	Scotland.
1871-80,	...	...	...	...	...	36·6	34·9
1881-90,	...	...	...	...	...	36·5	32·4
1891-95,	...	...	...	...	...	33·9	30·7
1896-1900,	...	...	...	...	...	33·1	30·0
1901, ...	...	...	...	...	...	31·8	29·5
1902. ...	...	...	...	...	...	31·8	29·2
1903, ...	...	...	...	...	...	32·0	29·2
1904, ...	...	...	...	...	...	31·0	28·6

During the decade 1894-1903, and in 1904, the rates for the following large towns have been as follows :—*

						1894-1903.	1904.
Glasgow,	...	...	...	...	...	32·8	31·0
Edinburgh,	...	...	...	...	...	26·5	23·4
Dundee,	...	...	...	...	...	29·2	27·6
Aberdeen,	...	...	...	...	...	32·2	29·8
London,	...	...	...	...	...	29·4	27·9
Liverpool,	...	...	...	...	...	34·9	33·7
Manchester,	...	...	...	...	...	32·4	31·3
Birmingham,	...	...	...	...	...	32·7	31·6

It will be observed that the birth-rate in Glasgow is lower than that of Liverpool in both periods.

In Table II. the births and rates *per million* in each ward are stated, to which have been added the rates for 1902-3 for comparison. Springburn Ward in 1904 had the highest birth-rate (41·7); Dalmarnock and Mile-end both exceed 40; Pollokshields is lowest with 10·7; in Park it is 11·8; and in Blythswood, 11·5.

* The rates in these Tables are taken from the Registrar-General's Annual Reports and Summaries.

TABLE II.

GLASGOW, 1904.—BIRTHS and BIRTH-RATES *per Million* in each WARD, exclusive of Institutions and Harbour.

MUNICIPAL WARDS.	1902.	1903.	1904.	
	Rate per Million.	Rate per Million.	Number.	Rate per Million.
1. Dalmarnock, ...	40,834	40,956	2,058	40,627
2. Calton, ...	36,014	32,828	1,239	32,634
3. Mile-end, ...	39,909	41,325	1,742	40,341
4. Whitevale, ...	33,198	32,506	1,118	33,789
5. Dennistoun, ...	31,042	29,192	1,020	29,783
6. Springburn, ...	41,764	41,852	1,762	41,666
7. Cowlares, ...	34,425	35,526	1,123	37,017
8. Townhead, ...	33,601	32,734	1,257	31,940
9. Blackfriars, ...	32,625	33,135	733	32,580
10. Exchange, ...	18,803	22,401	45	20,107
11. Blythswood, ...	15,086	9,455	40	11,478
12. Broomielaw, ...	28,969	31,906	246	30,404
13. Anderston, ...	34,110	34,734	975	33,456
14. Sandyford, ...	22,750	25,559	580	22,356
15. Park, ...	12,886	13,345	298	11,815
16. Cowcaddens, ...	36,234	35,110	1,323	34,641
17. Woodside, ...	32,356	33,579	1,471	32,644
18. Hutchesontown, ...	39,598	40,358	1,642	39,598
19. Gorbals, ...	28,416	27,890	1,076	29,429
20. Kingston, ...	29,560	30,436	1,034	29,579
21. Govanhill, ...	36,327	35,339	1,288	38,011
22. Langside, ...	20,336	21,637	652	19,963
23. Pollokshields, ...	10,425	11,069	190	10,715
24. Kelvinside, ...	12,133	11,563	240	12,067
25. Maryhill, ...	39,364	42,821	1,450	38,600
— Institutions and Harbour, ...	...	...	111	...
CITY, ...	31,802	32,042	24,713	31,463

DEATHS—ALL CAUSES.

15,414 deaths from all causes were registered in Glasgow during the year 1904, representing a death-rate of 19·3 per 1,000 living on the Registrar-General's estimate of population. But, as has been explained in former Reports, these are subject to correction for institutional deaths in the following manner:—

Number of deaths registered as occurring within the City, 1904,	15,414	
From which deduct deaths occurring in Glasgow, chiefly in		
Institutions, of persons whose usual residence is beyond		
the City boundary, ...	800	
		14,614
And add deaths of Glasgow citizens in Govan Poorhouse,	172	} 180
And in Knightswood Hospital, ...	8	
Leaving		14,794

properly belonging to Glasgow. On the Medical Officer's estimate of the population, which is lower by 12,892 than the Registrar-General's, this represents a death-rate of 18·8 per 1,000 living, which is fractionally above the rate for 1903, but less than that recorded for any other year. In 1903 the rate thus calculated was 18·5, and the difference is equivalent to an increase of 334 deaths per million living. In 1902 the death-rate was 19·4, and the movement of these three years in the main corresponds with that in Scotland generally. It will be noted further by referring to Table III., which follows, that among the general diseases in which reduction took place, zymotics, as a class, are lower, but that smallpox and diarrhoea were slightly more fatal than in 1903. In septic diseases and diseases of the nervous system there has also been a reduction, but in all the other principal groups of disease an increase has been recorded.

Diseases of the respiratory system, including tubercular diseases, show a slight increase, and this extends to all forms of tuberculosis not primarily attacking the lungs—*i.e.*, not pulmonary phthisis.

TABLE III.

GLASGOW, 1903-4.—DEATH-RATES per 1,000.

				1903.		1904.		-	+	-	+
I. PRINCIPAL ZYMOTIC DISEASES, ...				...	2·505	...	2·450	...	...	·055	...
Smallpox, ...				·030	...	·085	...	...	·055	...	...
Diphtheria, ...				·132	...	·116	...	·016	...	...	...
Scarlet Fever, ...				·105	...	·088	...	·017	...	...	...
Typhus Fever, ...				·008	...	·006	...	·002	...	...	...
Enteric and Doubtful Fevers, ...				·183	...	·108	...	·075	...	...	...
Measles, ...				·442	...	·418	...	·024	...	...	...
Whooping-cough, ...				·772	...	·731	...	·041	...	...	...
Diarrhœa, ...				·833	...	·898	...	...	·065	...	...
II. SEPTIC DISEASES, ...				...	·172	...	·146	...	...	·026	...
III. TUBERCULAR DISEASES— ...				...	2·803	...	2·853	...	...	...	·050
Phthisis, ...				1·609	...	1·644	...	...	·035	...	...
Not Phthisis, ...				1·194	...	1·209	...	...	·015	...	...
IV. CANCER (Malignant Disease), ...				...	·655	...	·690	...	...	...	·035
V. DISEASES OF NERVOUS SYSTEM, ...				...	1·792	...	1·661	...	...	·131	...
VI. „ CIRCULATORY SYSTEM, ...				...	1·523	...	1·597	...	...	...	·074
VII. „ RESPIRATORY „ ...				...	3·923	...	4·116	...	...	...	·193
VIII. OTHER CAUSES, ...				...	5·129	...	5·323	...	...	...	·194
All Causes, ...				...	18·502	...	18·836	...	...	...	·334
Birth-rates, ...				...	32·042	...	31·463	...	...	...	...
Deaths under 1 year per 1,000 born, ...				...	142	...	145	...	...	...	...

For several periods the death-rate from all causes, calculated on the inhabited-house estimate of the population and on the deaths corrected, as formerly indicated, has been as follows :—

GLASGOW.—ALL CAUSES—DEATH-RATE PER 1,000 LIVING.

1881-1890, ...	24·22
1891-1900, ...	21·53
1901, ...	20·63
1902, ...	19·38
1903, ...	18·52
1904, ...	18·84

In order to compare these rates with those of other towns, we must revert to the deaths as registered and to the Registrar-General's estimate of the population,

and in the following Table the rates are given for several of the large towns in England and Scotland :—

GLASGOW AND SEVERAL TOWNS—DEATH-RATE PER 1,000 LIVING.

				1894-1903.		1904.
Glasgow,	...	...	...	21·1	...	19·3
Edinburgh,	...	...	...	18·9	...	16·6
Dundee,	...	...	...	19·9	...	20·2
Aberdeen,	...	...	...	18·7	...	17·8
London,	...	...	...	18·3	...	16·6
Liverpool,	...	...	...	23·3	...	22·6
Manchester,	...	...	...	22·6	...	21·3
Birmingham,	...	...	...	20·1	...	19·3

It will be observed that the rate for Glasgow is lower than that for any of the large English towns quoted save London. In the Report for last year I introduced a comparison of the death-rates at nine age-periods, but the Census data are now too remote to afford any accurate estimate of the age-distribution of the present population on which corresponding rates may be calculated for 1904.

It may be of interest, however, to present a comparison of the death-rates of several towns corrected for age and sex distribution. The “corrected death-rates” in the following Table represent the rates in each town named, on the assumption that the age and sex distribution of the populations therein is similar to that of the country generally, the age and sex distribution of Scotland being used in obtaining the factor for Glasgow, while that of England and Wales is used for the English towns:—

TOWNS.	Recorded Death-rate.	Corrected Death-rate.	Birth rate.	Deaths under 1 year per 1,000 Births.	Diarrhoea and Enteritis Mortality per 1,000 Births.
Leeds, ...	17·92	19·56	28·00	176·00	*35·90 8·25
Glasgow, ...	18·16	20·11	30·99	145·00	34·09
Birmingham.	19·30	20·80	31·50	195·00	65·67
Liverpool, ...	21·90	23·40	33·50	196 00	58·00

* Includes Diarrhoea, 26·59 ; Zymotic Enteritis, 9·31.

The relatively low diarrhoeal rate in Glasgow may be noted.

In Table IV. the number of deaths and the rate per million living are stated for each ward, and corresponding information is included for 1902 and 1903.

TABLE IV.

GLASGOW, 1904.—DEATHS and DEATH-RATES *per Million* in each MUNICIPAL WARD, with corresponding Figures for 1902 and 1903.

MUNICIPAL WARDS.	1902.	1903.	1904.	
	Rate per Million.	Rate per Million.	Number.	Rate per Million.
1. Dalmarnock, ...	19,497	19,249	1,018	20,096
2. Calton, ...	24,997	22,844	897	23,626
3. Mile-end, ...	22,282	23,233	947	21,931
4. Whitevale, ...	19,794	19,184	673	20,340
5. Dennistoun, ...	13,198	13,258	463	13,519
6. Springburn, ...	18,400	18,665	800	18,918
7. Cowlairs, ...	15,612	15,312	509	16,778
8. Townhead, ...	19,921	18,405	731	18,575
9. Blackfriars, ...	24,130	22,524	493	21,913
10. Exchange, ...	14,103	18,369	39	17,426
11. Blythswood, ...	13,470	13,626	58	16,643
12. Broomielaw, ...	28,858	27,588	166	20,517
13. Anderston, ...	20,223	18,470	565	19,387
14. Sandyford, ...	16,734	15,478	436	16,805
15. Park, ...	12,013	10,940	272	10,784
16. Cowcaddens, ...	23,414	23,949	945	24,744
17. Woodside, ...	16,069	15,179	717	15,912
18. Hutchesontown, ...	20,402	19,512	940	22,669
19. Gorbals, ...	18,981	18,966	660	18,051
20. Kingston, ...	17,870	18,727	624	17,850
21. Govanhill, ...	15,786	13,999	542	15,996
22. Langside, ...	10,204	10,363	314	9,614
23. Pollokshields, ...	11,444	9,656	155	8,741
24. Kelvinside, ...	7,918	8,009	141	7,090
25. Maryhill, ...	14,708	14,951	598	15,919
— Institutions and Harbour, ...	...	...	1,091	...
CITY, ...	• 19,375	18,524	14,794	18,835

It will be seen that Cowcaddens presents the highest rate, while Calton, Mile-end, Blackfriars, and Broomielaw also exceed 20 per 1,000 in both years. The rate in Broomielaw Ward this year was phenomenally low—so low, indeed, that a considerable time has been spent in the endeavour to discover whether error had not crept into the accounting. The deaths in 1903 number 230, and in the present year only 166, the number in the old Brownfield area having fallen from 103 to 67. Although there has been considerable sanitary activity in this particular area during the past 12 months, it would be unwise to found any conclusions thereon at the present moment. Indeed, on comparing the ward death-rates generally for the three years now available, it is obvious that we will require to wait until at least the experience of five years has been afforded us before any instructive attempt can be made to arrange them in groups which will represent both their sanitary and social conditions. Meanwhile an illustration of the fluctuations which may occur and influence death-rates, while physical conditions remain fairly comparable, is afforded by the comparison which has been established in the following Table (No. IVA.) in respect of the various causes of death in several wards:—

TABLE IV A.
GLASGOW, 1904.—COMPARISON of DEATH-RATES per MILLION from different DISEASES in certain WARDS, with their corresponding RATES in 1903, and showing *plus* differences.

MUNICIPAL WARDS.	All Causes.	Smallpox.	Diphtheria and Membranous Croup.	Scarlet Fever.	FEVERS.			Measles.	Whooping-Cough.	Diarrhoea.	Septic Diseases.	TUBERCULAR DISEASES.		Cancer.	Diseases of Nervous System.	Diseases of Circulatory System.	Croup.	Diseases of Respiratory System.	Violence.	Premature Birth.	Uncertified.	All Other Causes.
					Typhus.	Enteric.	Undefined.					Phthisis.	Not Phthisis.									
Whitevale—																						
1904, -	20,340	121	60	60	...	121	...	363	816	1,390	181	1,269	1,481	756	1,632	1,783	151	4,533	363	725	...	4,533
1903, -	19,184	30	148	237	...	296	...	533	681	770	207	1,865	1,658	799	1,747	1,539	118	3,789	474	622	148	3,523
	+ 1,156	+ 91							+ 135	+ 620						+ 244	+ 33	+ 744		+ 103		+ 1,010
Cowlares—																						
1904, -	16,778	66	132	165	33	66	...	791	659	890	132	1,022	1,220	363	1,483	1,417	33	3,626	396	890	33	3,362
1903, -	15,312	...	235	67	...	134	...	101	1,041	571	336	1,141	1,041	504	1,377	1,108	101	3,123	537	638	...	3,257
	+ 1,466	+ 66		+ 98	+ 33			+ 690		+ 319			+ 179		+ 106	+ 309		+ 503		+ 252	+ 33	+ 105
Blackfriars—																						
1904, -	21,913	133	...	133	44	133	...	178	845	1,245	133	2,356	800	889	1,245	2,134	...	5,956	622	667	311	4,089
1903, -	22,524	...	87	87	...	260	...	520	606	1,299	260	2,296	1,213	390	2,339	1,213	...	5,544	996	736	173	4,505
		+ 133		+ 46	+ 44				+ 239			+ 60		+ 499		+ 921		+ 412			+ 138	
Exchange—																						
1904, -	17,426	...	...	...	...	...	...	447	...	...	...	1,340	1,340	1,340	447	3,128	...	2,681	447	...	...	6,256
1903, -	18,369	...	...	...	...	448	...	...	...	448	...	1,792	448	448	1,792	2,240	...	4,032	896	448	...	5,377
								+ 447				+ 892	+ 892	+ 892		+ 888						+ 879
Blythswood—																						
1904, -	16,643	...	...	...	...	...	...	...	574	861	287	1,722	574	574	2,296	2,009	...	2,869	861	1,435	287	2,296
1903, -	13,626	...	...	...	...	...	...	278	278	556	278	2,225	556	556	1,112	2,225	...	2,781	278	...	...	2,503
	+ 3,017								+ 296	+ 305	+ 9		+ 18	+ 18	+ 1,184			+ 88	+ 583	+ 1,435	+ 287	
Broomielaw—																						
1904, -	20,517	124	124	...	...	...	...	494	989	1,360	247	1,360	618	618	1,236	2,225	124	4,326	865	247	247	5,315
1903, -	27,588	240	120	120	...	120	...	720	1,319	1,919	240	2,639	1,199	840	2,639	2,159	240	5,757	960	1,079	360	4,918
			+ 4								+ 7					+ 66						+ 397
Cowcaddens—																						
1904, -	24,744	52	236	52	...	157	...	733	890	1,204	105	1,676	1,571	812	1,938	1,859	...	6,415	812	576	26	5,603
1903, -	23,949	...	225	...	...	450	...	776	1,577	901	100	1,652	1,401	651	1,777	1,501	50	5,881	676	926	150	5,255
	+ 795	+ 52	+ 11	+ 52						+ 303	+ 5	+ 24	+ 170	+ 161	+ 161	+ 358		+ 534	+ 136			+ 348
Hutchesontown—																						
1904, -	22,669	96	121	48	...	241	...	555	1,785	844	121	1,905	1,543	723	1,953	1,495	145	5,740	627	941	24	3,810
1903, -	19,512	72	119	119	24	238	...	477	905	762	119	1,715	1,525	500	1,668	1,263	24	5,075	500	691	95	3,621
	+ 3,157	+ 24	+ 2			+ 3		+ 78	+ 880	+ 84	+ 2	+ 190	+ 18	+ 223	+ 285	+ 232	+ 121	+ 665	+ 127	+ 250		+ 189
Maryhill—																						
1904, -	15,919	...	186	27	...	160	...	373	266	878	80	1,118	1,145	453	958	1,544	27	4,073	559	958	...	3,035
1903, -	14,951	...	165	55	...	27	...	165	659	550	55	1,017	989	522	1,237	1,237	55	3,903	495	879	...	2,941
	+ 968		+ 21			+ 133		+ 208		+ 328	+ 25	+ 101	+ 156			+ 307		+ 170	+ 64	+ 79		+ 94

For example, in Blythswood, where the rate represents an increase of 3 per 1,000 on the deaths, two-thirds of this has resulted from an increase in the number of premature births and in deaths from diseases of the nervous system; while the diseases which are unclassified in the Table were fewer in 1904.

In Hutchesontown, on the other hand, where the increase in the general rate is practically identical with Blythswood, this has been contributed in varying proportions by almost all classes of disease stated in the Table.

As indicated in former Reports, some division of the wards for statistical purposes will ultimately be required, in order that the true density of small areas, together with other factors expressing unhealthiness, may be more accurately defined; but it is of interest at the present moment to continue the record, begun on page 15 of the Annual Report for 1903, of the deaths in the old Sanitary Districts of Brownfield and Cowcaddens. If the figures given in the annexed statement are compared with those of former years, it should be noted that the present population and deaths given include those resident and occurring in Institutions and Shipping.

1904.—NUMBER OF INHABITED HOUSES, ESTIMATED POPULATION, DEATHS, AND DEATH RATES IN OLD SANITARY DISTRICTS NOS. 13 AND 16.

DISTRICT.	Number of Houses.	Persons per House.	Population, including Institutions.	Total Deaths.	Death-rate per 1,000.
(13) Brownfield, -	553	5·218	3,161	67	21·20
(16) Cowcaddens, -	3,717	4·568	17,865	521	29·16

AGE DISTRIBUTION OF DEATHS.

In the following Table these are stated for seven periods of life, and on referring to the percentage distribution it will be seen that 24 per cent. were of infants under 1 year and 40 per cent. were of children under 5 years, as compared with 25 and 40 per cent. respectively in 1903:—

TABLE V.

GLASGOW, 1904.—DEATHS from DIFFERENT DISEASES at several AGE PERIODS.

DISEASES.	Total, All Ages.	Under 1 Year.	1-4 Years.	5-14 Years.	15-19 Years.	20-24 Years.	25-59 Years.	60 Years and Over.	Under 5 Years.	5 Years and Over.
Smallpox, ...	67	18	2	2	...	2	41	2	20	47
Diphtheria and Mem- branous Croup, ...	91	11	59	18	1	1	...	1	70	21
Scarlet Fever, ...	69	1	34	24	2	3	4	1	35	34
Typhus Fever, ...	5	...	...	...	1	...	4	...	...	5
Enteric Fever, ...	84	...	5	14	11	10	42	2	5	79
Undefined Fever, ...	1	...	...	...	...	...	1	...	...	1
Measles, ...	328	89	218	19	1	...	1	...	307	21
Whooping-cough, ...	574	228	325	19	...	...	2	...	553	21
Diarrhœal Diseases,	705	433	154	27	3	5	53	30	587	118
Septic Diseases, ...	115	15	6	5	4	16	53	16	21	94
Phthisis, ...	1,291	13	44	81	112	148	839	54	57	1,234
Other Tubercular Diseases, ...	950	289	397	149	25	12	73	5	686	264
Cancer, ...	542	1	1	3	...	4	311	222	2	540
Diseases of Nervous System, ...	1,305	194	110	70	20	12	388	511	304	1,001
Diseases of Circulatory System, ...	1,254	61	7	38	49	35	567	497	68	1,186
Diseases of Respira- tory System, ...	3,170	783	719	78	48	61	840	641	1,502	1,668
Violence, ...	392	27	50	38	11	15	206	45	77	315
Premature Birth, ...	478	478	...	...	...	...	...	...	478	...
Uncertified (or Un- known), ...	44	12	2	3	...	...	18	9	14	30
Other Causes, ...	3,329	922	205	132	52	77	909	1,032	1,127	2,202
All Causes, ...	14,794	3,575	2,338	720	340	401	4,352	3,068	5,913	8,881
Number in 1,000 dying at several Age Periods, }	...	242	158	49	23	27	294	207	400	600

INFANTILE MORTALITY.

3,575 deaths of infants under one year occurred, which represents a death-rate per 1,000 born of 145, as compared with 142 in 1903. Of these deaths 3041 were of legitimate and 534 of illegitimate children, representing rates of 131 and 342 respectively per 1,000 births of each class. For several years the rate per 1,000 born of each class has been—

	1898.	1899.	1900.	1901.	1902.	1903.	1904.
Infantile death-rate of legitimate children, }	147	143	145	141	126	132	131
Infantile death-rate of illegitimate children, }	302	286	286	269	244	298	342

and the rate of both classes during several periods has been as follows:—

Average of 5 years, 1886-90, = 143 per 1,000 births.

„	1891-95, = 146	„
„	1896-1900, = 151	„
„	1901, = 149	„
„	1902, = 128	„
„	1903, = 142	„
„	1904, = 145	„

Compared with several large towns the infantile mortality in 1894-1903 and in 1904 is as follows:—

				1894-1903.	1904.
Glasgow,	...	...	...	165	146
Edinburgh,	...	...	...	159	130
Dundee, ...	...	...	...	189	174
Aberdeen,	...	...	...	171	151
Paisley, ...	...	...	...	140	136
Leith, ...	...	...	...	141	121
Greenock,	...	...	...	157	123
Perth, ...	...	...	...	127	126
London, ...	...	...	...	154	146
Liverpool,	...	...	...	184	196
Manchester,	...	...	...	185	187
Birmingham,	...	...	...	184	197

The statement of deaths occurring in the first two quarters and in the last half-year of life, contained in the Report for 1903, is here introduced, together with the corresponding figures for 1904:—

		NUMBER OF DEATHS.								
Year.	Infantile Death-rate per 1,000 Births.			—3 Months.		—6 Months.		—12 Months.		Total.
1871,	...	191	...	1,460	...	636	...	1,512	...	3,608
1872,	...	159	...	1,335	...	608	...	1,255	...	3,198
1902,	...	128	...	1,663	...	557	...	948	...	2,168
1903,	...	142	...	1,712	...	657	...	1,194	...	3,563
1904,	...	145	...	1,736	...	675	...	1,164	...	3,575

PERCENTAGE OF TOTAL DEATHS OCCURRING UNDER 3, 6, AND 12 MONTHS.

1871,	...	...	...	40	...	18	...	42	...	100
1872,	...	...	...	42	...	19	...	39	...	100
1902,	...	...	...	52	...	18	...	30	...	100
1903,	...	...	...	48	...	18	...	34	...	100
1904,	..	...	...	49	...	19	...	32	...	100

TABLE VI.

GLASGOW, 1904.—NUMBER of DEATHS under ONE YEAR and DEATH-RATE per 1,000 BIRTHS in each MUNICIPAL WARD (exclusive of Institutions and Shipping).

MUNICIPAL WARDS.	1903.	1904.	
	Rate per 1,000 Births.	Number.	Rate per 1,000 Births.
1. Dalarnock, ...	140	306	149
2. Calton, ...	183	243	196
3. Mile-end, ...	152	299	172
4. Whitevale, ...	146	182	163
5. Dennistoun, ...	101	106	104
6. Springburn, ...	142	260	148
7. Cowlairs, ...	119	137	122
8. Townhead, ...	145	158	126
9. Blackfriars, ...	183	114	156
10. Exchange, ...	140	4	89
11. Blythswood, ...	177	15	375
12. Broomielaw, ...	199	40	163
13. Anderston, ...	132	155	159
14. Sandyford, ...	148	79	136
15. Park, ...	102	26	87
16. Cowcaddens, ...	194	234	177
17. Woodside, ...	121	185	126
18. Hutchesontown, ...	130	265	161
19. Gorbals, ...	151	162	151
20. Kingston, ...	164	144	139
21. Govanhill, ...	117	152	118
22. Langside, ...	69	57	87
23. Pollokshields, ...	117	6	32
24. Kelvinside, ...	73	17	71
25. Maryhill, ...	106	177	122
— Institutions and Shipping, ... ..	....	52	...
CITY, ...	142	3,575	145

In Table VI. the infantile death-rate is shown for the several wards of the City, and a column has been introduced to show the corresponding rates for 1903. Dalmarnock, Calton, Mile-end, Whitevale, Broomielaw, Anderston, and Cowcaddens all present rates in excess of the mean for the City during 1904, but the fluctuations require to be observed over a longer period before the true mean can be obtained which will indicate the relationship of the several wards to each other.

Reference has already been made in Table IVA. to the large proportion of premature births occurring in Blythwood Ward in explanation of the unusually high rate recorded therein, and the following Table shows the causes of the 15 deaths therein occurring, the numbering of the several groups being that shown in Tables VIB. and VIC. :—

TABLE VIA.
GLASGOW, 1904.—CAUSES of INFANTILE MORTALITY in BLYTHSWOOD WARD.

Cause of Death—					
I. Immaturity—					
(a) Premature Birth,	...	...	...	...	5
II. Diseases of Respiration,	...	...	...	...	3
III. Diseases of Digestion—					
(a) Diarrhœal,	...	...	...	...	2
IV. Diseases of Nervous System,	...	...	...	...	2
VII. Infectious Diseases—					
(a) Whooping-cough,	...	...	...	...	1
(e) Syphilis,	...	...	...	...	1
X. All other Causes,	...	...	...	...	1
					15

In continuation of the inquiry which was begun last year into the causes of infantile deaths, these have again been grouped for males and females in Tables VIB. and VIC.; and by comparing the figures in the columns of Group Totals with those in the Table for 1903 some changes may be noted for further inquiry.

In the first place, it is to be observed that, while the death-rate for both sexes for the present year exceeds by 3 per thousand births the rate for 1903, the number of deaths of male infants is less by 34 than in 1903, while the number of deaths of female infants exceeds last year's by 46. Inquiring further into the sources of these differences, it is seen that immaturity, diseases of digestion, and accidents of birth were productive of a larger number of deaths among male infants: while in female infants, immaturity, diseases of respiration, and of digestion, and tubercular diseases all show an increase.

TABLE VIb.

GLASGOW, 1904.—MALE INFANT DEATHS, classified under TEN PRINCIPAL GROUPS of CAUSES of DEATH, with relative GROUP PERCENTAGES, and showing AGES by WEEKS and by MONTHS.

CAUSES OF DEATH.	AGES BY WEEKS.					AGES BY MONTHS.										TOTAL.	Group Totals.	Group Percentages.	Death-rate per 1,000 Male Births.
	AGES BY WEEKS.					AGES BY MONTHS.													
	1st	2nd	3rd	4th	Total.	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th			
I. IMMATURETY, (a) Premature Birth, ... (b) Congenital Malformations, ... (c) Atelectasis, ... (d) Atrophy and Debility, ...	191 9 13 84	28 4 1 22	20 2 1 22	11 1 ... 24	250 16 15 152	4 2 ... 53	4 1 ... 45	2 1 ... 29	1 2 ... 16	2 ... 13 33	2 ... 10 24	 8	 4	 7	 6	 350	+ 650 ... 		

TABLE VIC.

GLASGOW, 1904.—FEMALE INFANT DEATHS, classified under TEN PRINCIPAL GROUPS of CAUSES of DEATH, with relative GROUP PERCENTAGES, and showing AGES by WEEKS and by MONTHS.

CAUSES OF DEATH	AGES BY WEEKS.					AGES BY MONTHS.												Total.	Group Totals.	Group Percent-ages.	Death-rate per 1,000 Female Births.
	AGES BY WEEKS.					AGES BY MONTHS.															
	1st.	2nd	3rd	4th	Total.	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th					
I. IMMATURETY, (a) Premature Birth, ... (b) Congenital Malformations, ... (c) Atelectasis, ... (d) Atrophy and Debility, ...	152 10 7 56	29 4 ... 19	9 1 1 29	5 21	195 15 8 125	13 2 ... 37	5 1 ... 31	... 1 ... 29	1 1 ... 12	2 1 ... 9	1 1 ... 5	1 7	1 2	 4	... 1 ... 3	 3	... 218 22 8 267	+ 515	31·9	43	
II. DISEASES OF RESPIRATION, ...	5	11	7	16	39	39	43	11	27	29	23	31	42	30	27	33	374	+ 374	23·1	31	
III. DISEASES OF DIGESTION, ... (a) Diarrheal, ... (b) Dentition, ... (c) Others, ...	1 ... 6	4 ... 3	1 ... 5	4 ... 11	10 ... 25	15 ... 9	25 ... 7	24 ... 5	13 ... 8	18 ... 13	23 1 4	16 ... 4	8 3 3	13 2 5	9 1 7	14 3 ...	188 10 90	+ 288	17·8	24	
IV. DISEASES OF NERVOUS SYSTEM, ...	10	5	7	5	27	13	17	12	12	15	11	4	6	13	8	12	150	- 150	9·3	12	
V. TUBERCULAR DISEASES, (a) Tabes Mesenterica, ... (b) Tubercular Meningitis, (c) Other Forms, ...	... ... ... ...	... ... ... ...	... ... ... ...	... ... ... ...	... ... ... ...	... ... ... 1	 2	 2 1	1 7 3	5 1 2	1 3 1	1 4 ...	 3 1	... 3 6 5	 1 ...	 2 3	... 11 29 19	+ 59	3·6	5	
VI. ACCIDENTS OF BIRTH, ... (a) Injury, ... (b) Umbilical Hemorrhage, ...	3 ... ...	... ... ...	... ... ...	... ... ...	3 ... ...	... ... ...	... ... ...	... ... ...	... ... ...	... ... ...	... ... ...	... ... ...	... ... ...	... ... ...	... ... ...	... ... ...	... 3 ...	- 3	0·2	0·2	
VII. INFECTIOUS DISEASES, (a) Whooping-cough, ... (b) Measles, ... (c) Scarlet Fever, ... (d) Erysipelas, ... (e) Syphilis, ...	1	1 1 1	1 1 1	2 1 2	5 1 ... 2 4	12 7	9 1 1 ...	10 1	4 1 ... 1	4 3	8 3	8 5	8 5	14 3	12 8	12 11 ... 1	9 45 1 2 13	- 168	10·4	14	
VIII. SUFFOCATION, ...	2	...	3	1	6	2	3	1	1	...	...	...	...	...	1	...	14	- 14	0·9	1	
IX. OTHER VIOLENCE, ...	1	...	...	...	1	...	...	1	...	...	...	...	...	1	...	...	3	+ 3	0·2	0·2	
X. ALL OTHER CAUSES, ...	5	5	4	...	14	5	5	3	4	4	2	2	...	1	2	...	42	- 42	2·6	3	
	259	83	70	68	480	155	150	101	96	106	86	83	85	103	81	90	...	1,616	100·0	134	

CONDITION OF RECENTLY-BORN CHILDREN.

An inquiry into the condition of recently-born children was begun during the closing months of the year, and the results till December are shown in the report which follows:—

INTRODUCTORY NOTE BY THE MEDICAL OFFICER, SUBMITTING REPORT BY DR. SINCLAIR OF AN INQUIRY INTO THE CONDITION OF RECENTLY-BORN CHILDREN IN DISTRICTS WITH A HIGH INFANTILE MORTALITY.

The area over which the enquiry extended included selected portions of Calton, Mile-end, Blackfriars, Broomielaw, and Cowcaddens Wards, in which the births during 1904 numbered 5,283. The earlier stage of the inquiry was directed to the births registered within a period of three weeks ending 19th November, 1904, and covered 200* out of about 323 registered in these districts, which may be taken as the average number registered within any corresponding period throughout the year.

For many years the Registrars have supplied the Local Authority with a return of all the births occurring in the several registration districts within the city boundary, and the facts thus obtained, having been distributed throughout the several sanitary districts (now wards), were used for calculating the birth and infantile mortality rates. For these purposes it was sufficient to obtain the information at intervals throughout the year; but with the object of following up the births in certain districts with as little delay as possible after they had been registered, the Registrars of the districts already named were asked to forward, every Saturday, a return of the births registered during the week then ending. As a method of obtaining information of a birth immediately after its occurrence, this has proved disappointing, because it has been found that an almost invariable custom prevails of postponing the registration of a birth until the three weeks allowed by law have almost expired. It is rarely possible, therefore, to make the enquiry until the fourth week after the birth.†

Up to the end of the year 1904, 268 births were enquired into. In 44 cases no further information was obtained because the families had removed or were out at the time of visit, 12 were ascertained to be dead, and of the remaining 212, 46, or almost 22 per cent., were found to be badly nourished. The circumstances with which these latter were associated are of extreme interest.

Dr. Sinclair has dealt at some length with this in his report, and the Table which he has prepared showing the relationship of this to the health of the mothers will repay a close study.

The general results of Dr. Sinclair's enquiry may thus be summarised. Of the 212 children remaining, it was found that less than 9 per cent. of the "well-nourished" children and less than 12 per cent. of the "fairly-nourished" children were artificially fed. On the other hand, artificial feeding prevailed to the extent of almost 22 per cent. among children who were obviously badly nourished, but it is significant that this leaves a large proportion of badly nourished children who were breast-fed. Indeed, it is satisfactory to note that neither in the case of legitimate nor illegitimate children was there any marked tendency to have recourse to artificial feeding, save under such pressure as the mother was probably unable to avoid. In each case one or other of two explanations was advanced—insufficient milk supply in the mother or the necessity for going out to work.

Dr. Sinclair has indicated the variety of foods used for artificial feeding, and draws attention to the fact that the common practice of adding water to milk without at the same time also adding cream results in a mixture which is too deficient in fat, and may be too rich in casein to form a suitable food for young infants.

Badly Nourished Children.—Few things are more suggestive than the tale of children dead in childhood in the families in which these badly nourished were found.

* This work was continued after the original report was submitted, and subsequent figures include all the children visited till the end of the year 1904.

† The Midwives Act, 1902, does not extend to Scotland, but by Section 3 (1) certain regulations can be made which have been extended to the Notification of Still Births to the Local (Supervisory) Authority (Local Authority), and might apparently also include the notification of all births attended by midwives in certain districts.

In 46 families the total births numbered 243, or rather more than five births to a family. Of these births 85 or 34·9 per cent. died during infancy or childhood.

Condition of Mother.—*Mother working out during Pregnancy.*—This was recorded in 19 cases, in 9 of which it was associated with insufficient food, and in 7 also with the use of alcohol or malt liquors. In 15 the father was in irregular employment.

Food of Mother.—18 mothers had insufficient food during the pregnancy; 14 were in indifferent health during the whole time; and in 27 cases the father was in irregular employment.

Conclusion. — On considering the facts related, the committee will, I trust, approve of the work being continued and supplemented by providing for repeated visits to those households in which the badly-nourished children have been found. It will be observed that 30 of the 46 houses were in a decidedly dirty condition at the time of visit. It is, however, the easy facility with which one artificial food stuff may be substituted for another, should the natural food supply of the infant fail, which constitutes a definite menace to the child's welfare, because the mother is quite without guidance or any principle to help her in making the selection of the food she may obtain. Effort should, therefore, I think, be made to make the visit useful in awakening an intelligent interest in the mind of the mother in the nature of the child's food. Those mothers whom Dr. Sinclair found using cow's milk after simple dilution were unaware of its impaired food value. Nor is it in the interest of the badly-nourished children who were being nursed that a source of food which was so obviously inadequate to their requirements should be continued, even although the source was the natural one, unless the condition of the mother can be improved. To accomplish both objects special qualification on the part of the visitor is obviously needed, and the work of visitation can only be conducted with any hope of success if placed under medical supervision.*

A. K. CHALMERS.

Sanitary Chambers,
Glasgow, 26th January, 1905.

INQUIRY INTO THE CONDITION OF RECENTLY-BORN CHILDREN IN DISTRICTS WITH A HIGH INFANTILE MORTALITY.

DR. W. SMITH SINCLAIR'S REPORT.

INTRODUCTORY.

On the suggestion of Dr. Chalmers, an inquiry into the general health and physical condition of newly-born infants in certain districts of the city was commenced towards the end of October, 1904.

REGISTRATION OF BIRTHS.

For this purpose it was arranged that weekly returns of the births occurring in certain of the registration districts within the city boundaries should be obtained from the Registrars.

Unfortunately, it seems to be the custom with the majority of the parents amongst certain classes to postpone the registration of the births until towards the end of the period of three weeks allowed for that purpose, the result being that usually a period of about one month elapses before the information is available. It has been shown that about one-third of the infant deaths occur during the first four weeks immediately following birth (report of the Medical Officer of Health for the City of Glasgow for the year 1902), so that it becomes impossible to make any personal observation of the general

* The leaflet containing "Hints on the Management of Children," which it has been the custom to issue through the Registrars to every parent or guardian registering the birth of a child, is presently under revision.

physical condition of the majority of these under the present arrangements. It has been suggested that internal malformations may be the cause of a certain number of these; however, there are no means available by which this could be verified. If it were possible to obtain some notification of births within a short period after the occurrence, it would be of the utmost value in eliciting the cause of many of such deaths in an enquiry of this nature.

DISTRICTS.

For the purpose of this enquiry certain Registration Districts have been selected—viz., No. 7, Blythswood; No. 8, Milton; No. 4, Calton; No. 5, Blackfriars; No. 11, Hutchesontown; No. 12, Gorbals; and No. 2, Camlachie which include the Municipal Wards No. XII., Broomielaw; No. XVI., Cowcaddens; No. II., Calton; Nos. IX. and IXA., Blackfriars; and No. III., Mile-end, in which the infantile death-rate is respectively 199, 194, 183, 183, and 154 per 1,000 births. These rates are considerably above the average for the whole City, which is 142 per 1,000 births. (Annual Report for 1903, Statement of Certain Causes of Death, &c., in Wards II., III., IX., XII., and XVI.)

SELECTION OF BIRTH REGISTRATION ENTRIES.

From the weekly birth returns for these districts a selection of the entries is made, so as to include, as far as possible, those where taking into consideration the occupation of the parents, size of house, social condition, surroundings, &c., one might assume that the infant is not being reared under satisfactory conditions, and where such might be improved by some system of practical instruction or advice to those responsible for the upbringing.

INQUIRY FORM.

Subjoined is a copy of the form used. It is not always possible to obtain full and accurate replies to all the questions; however, all in the least doubtful were rejected.

MEANS BY WHICH INFORMATION IS OBTAINED.

The information is obtained directly from the mother in the great majority of cases by visiting personally at her home. In all other cases, when the mother is not seen, (*e.g.*, when she is out working) recourse is had to the person in charge of the infant. In all the cases investigated the infant, when alive, is examined. In no case, so far, has the visit or any part of the enquiry been resented.

INQUIRY FORM.

- | | |
|----------------------------|--|
| 1. Ward. | 5. When born. |
| 2. Date of visit. | 6. Sex. |
| 3. Name. | 7. Legitimate or illegitimate. |
| 3A. Occupation of parents. | 8. If born at full term, or prematurely. |
| 4. Where born. | |

CONDITION OF INFANT.

9. Well, fairly, or badly nourished.
10. Any known abnormalities at birth.
11. If nursed by the mother, or artificially fed.
12. If artificially fed, for what reason and on what food.

MOTHER.

13. If working out at any time during term of pregnancy.
- 13A. Age of mother.
14. At what occupation.
15. If working out, for what period. (To how long before confinement.)
16. Health during pregnancy. (G. = Good; F. = Fair; B. = Bad.)
17. Appetite during pregnancy. (G. = Good; F. = Fair; B. = Bad.)
18. Food taken during pregnancy. (O. = Ordinary; S. = Special; Suff. = Sufficient quantity; Ins. = Insufficient.)
19. If alcohol taken during pregnancy. (Spirits, beer, stout, &c.)

FAMILY.

- 20. Number of children alive, and dates of birth.
- 21. Number of children dead, and dates of death and birth.
- 22. Number of miscarriages.
- 23. General health of those alive. (G. = Good ; F. = Fair ; B. = Bad.)
- 24. If given the leaflet "Hints about the Management of Children."

FATHER.

- 25. If working regularly during the mother's term of pregnancy.
- 26. Average weekly wage when working.

DWELLING-HOUSE.

- 27. Rent of house occupied.
- 28. Number of apartments.
- 29. Condition of house. (C. = Clean ; F. = Fair ; D. = Dirty ; V.D. = Very dirty. Also if damp walls, bad repair, dark or badly ventilated, &c.)

NUMBER OF VISITS MADE.

268 visits have been made up to the end of the year 1904. 224 of the cases have been investigated, while in 44 no further information than that derived from the birth returns could be obtained, owing to the parents having removed or being from home at the time of visit.

NUMBER OF ILLEGITIMATE INFANTS.

Of the 224 cases, 29 of the infants were illegitimate, whereas of the remaining 44 cases, 10 of the infants were illegitimate. A comparison between the two groups will be perceived more readily by considering these figures as expressed in percentages.

PERCENTAGES.

22·7 per cent. of the infants, regarding which no further information was obtainable, were illegitimate, whereas only 12·9 per cent. of the infants examined were illegitimate. The most probable explanation of this contrast is that a certain number of the mothers of illegitimate children are only temporarily resident in the various districts, and that after being confined they resume their former occupation and residence as soon as possible.

SEX—LEGITIMACY AND ILLEGITIMACY.

The following tables show the numbers of each sex, and also the numbers of legitimate and illegitimate infants in each of the two groups previously referred to :—

224 CASES INVESTIGATED.

	Legitimate.	Illegitimate.	Total.
Males, ...	98	15	113
Females, ...	97	14	111
Total, ...	195	29	224

44 CASES REMOVED OR NOT AT HOME.

	Legitimate.	Illegitimate.	Total.
Males, ...	18	4	22
Females, ...	16	6	22
Total, ...	34	10	44

DEATHS PREVIOUS TO VISIT.

Of the 224 infants regarding which information was obtained, it was found that 12 of them had died during the period between the date of birth and that of the visit.

Two of these were prematurely born—one at six months, which died within one day of birth, and the other at seven months, which died within two days of birth. Ten were full-term infants. Of these, two were said to be well nourished; four fairly, and four badly nourished.

Infants said to have been well nourished.—One died one month after birth, the cause of death being unknown, and the other 14 hours after birth, the cause being described as “weak heart.”

Infants said to have been fairly nourished.—One died 16 days after birth, from “congestion of the lungs,” 2 died three weeks after birth, and 1 one day after birth.

Infants said to have been badly nourished.—

One died 12 hours after birth,	-	-	-	(a)
One „ 2 days „	-	-	-	(b)
One „ 16 „ „	-	-	-	(c)
One „ 23 „ „	-	-	-	(d)

In each of these cases the cause of death is unknown. However, the mother of the one marked (a) had previously given birth to five full-term still-born children, this being the only one born alive; and the mother of the one marked (d) had given birth to 12 children, five now being alive and seven dead.

FEEDING AND CONDITION OF INFANT.

Of the 212 infants found alive, and regarding which information was obtainable, the result of the enquiries relative to the method of feeding and the examination of the physical condition is as follows:—

	Well Nourished.	Fairly Nourished.	Badly Nourished.
Nursed, - - - - -	51	97	36
Artificially Fed, - - - - -	5	13	10
Total, - - - - -	56	110	46
Percentage Artificially Fed, - - -	8·9	11·8	21·7

It may be of interest to note the relationship between the method of feeding and the physical condition of the infant, as expressed in the percentages, in which the contrast is more apparent.

ARTIFICIAL FEEDING.

By referring to the preceding table, it will be seen that 5 well-nourished, 13 fairly nourished, and 10 badly-nourished infants, or 28 in all—i.e., 13·2 per cent., were being artificially fed. Of these, 18 were legitimate and 10 illegitimate.

REASONS FOR ARTIFICIAL FEEDING OF (a) LEGITIMATE INFANTS.

Of the 18 legitimate infants being artificially fed, in 11 cases it was due to insufficient milk secretion, whereas in 7 cases the mother was working out. On enquiring into the probable cause of the deficient milk secretion in the 11 cases it was found that 7 were twin children, and that there was an insufficient quantity of milk secreted to nurse both twins. In one case the mother had been in bad health, and had also taken alcohol freely during pregnancy. In the remaining 3 cases no other cause could be assigned than the general unsatisfactory physical condition of the mother.

(b) ILLEGITIMATE INFANTS.

Of the 10 illegitimate infants being artificially fed, in 2 cases there was insufficient milk secretion, whereas in the remaining 8 cases the mother was working out. Again, with reference to the probable cause of the deficient secretion, in both cases the mother had a definitely insufficient quantity of food during pregnancy, and in 1 case this was associated with the taking of alcohol freely. In 1 case there had been 4 children born, 2 of which were dead, whereas in the other case 9 children had been born, 4 of which were dead.

NATURE OF ARTIFICIAL FEEDING.

Of the 28 infants being artificially fed, 1 was being fed on undiluted cow's milk ; 12 on cow's milk and water in varying proportions ; 6 on Nestle's or other brands of condensed milk ; 3 on humanized milk from the depot ; 3 on Mellin's food ; and 3 on bread and milk.

Three infants only, those having the humanized milk from the depot, were being fed satisfactorily. The mixture of cow's milk and water, given in 12 cases, was in all probability either deficient in fat, for in no case was cream added, or too rich in casein owing to insufficient dilution. In one case an infant two days old was being fed on "saps," i.e., bread softened with a mixture of milk and water or undiluted milk. Nestle's and other brands of condensed milk, diluted with large quantities of water, seemed to be a popular method of feeding, owing to its low cost and ease of preparation.

"HINTS ABOUT THE MANAGEMENT OF CHILDREN"—LEAFLET ISSUED BY THE
COMMITTEE ON HEALTH.

With the object of roughly estimating the value of the distribution of the above leaflet amongst the classes under consideration, enquiries were also made with regard to it.

131 of the mothers, or about 62 per cent., stated that they had not received a copy on registering the birth.

In many cases, where copies had been given, it was not until the question was asked, and the vaccination and registration certificates unfolded, that the mother became aware that she had received a copy. In the 131 cases above referred to, however, no trace of any copy was seen.

Some stated that a copy was given on registering the first-born, but not afterwards.

CONCLUSIONS *re* LEAFLET.

It seemed as if some distinction were being made in the distribution of the leaflet at the registration offices as to whether the infant was the first-born or not. One is of opinion that a copy should be given on each registration of birth being made, irrespective of whether the mother is likely to have already received one or not.

From the fact that, in practically all instances in which copies had been distributed, little or no attention had been paid to the information and advice contained therein, and no visible efforts made to bring such into effect practically, it is to be feared that, with the class of parents under consideration, the distribution of the leaflet fails to exert the influence one might have been led to expect.

Nothing short of individual visiting, repeated at intervals, and the giving of practical advice orally, by some one fully competent to undertake such duties, will exert any marked influence on the rearing of the infants under consideration. The leaflet would be useful if read over, with supplementary explanations when and where necessary, by such visitor, and then kept for future reference.

BADLY-NOURISHED INFANTS.—RELATION OF SUCH TO THE CONDITION OF THE MOTHER
DURING PREGNANCY.

The accompanying Table has been prepared with the object of showing the relationship between the condition of the 46 badly-nourished infants referred to in the preceding Table, under "Feeding and Condition of Infant," and the adverse conditions under which the respective mothers were living during the whole or part of the term of pregnancy.

One is impressed with the constancy with which certain conditions having a considerable bearing upon the badly-nourished state of the infant are present.

MOTHER WORKING OUT DURING PREGNANCY.

It is a well-recognised fact that a pregnant woman ought to avoid any hard or long-continued work, and that, for at least one month prior to her confinement, she ought to take long periods of rest, but, of course, with a sufficient amount of exercise to keep herself in health.

In Switzerland, abstention from work during the last four weeks is insisted upon by law.

On referring to the Table, it will be seen that in 19 cases the mother was working out during pregnancy. In many of these work was continued right up to the time of being confined. Irregularity of the father's employment is practically always the cause of the mother working out. In 16 cases out of the 19 this was the case. Of the three exceptions, one infant was illegitimate.

HEALTH AND FOOD OF MOTHER.

The mother's general health, and the assimilation of a sufficient quantity of nutritious food, influences the antenatal condition of the infant considerably.

In 14 cases the mother was in bad or indifferent health, and in 13 cases this was accompanied with bad or indifferent appetite. In 18 cases it was definitely stated that there was inability to procure a sufficient quantity of food. In these again one finds an almost constant association with the fact that the father's employment was irregular.

USE OR ABUSE OF ALCOHOL.

It has been stated that the taking of alcohol during pregnancy plays a very important part in the question. It may be safely assumed that, in the 18 cases where the mother acknowledged taking alcohol in one form or another, it was taken to excess, and that frequently. In 11 cases this was associated with insufficient quantity of food, a very grave combination indeed as far as the condition of the infant is concerned.

FATHER'S IRREGULAR EMPLOYMENT.

This condition was present in 27 of the 46 cases. In many instances the father had been out of employment for a period of from three to five months during the nine months of the mother's pregnancy.

FAMILIES OF WHICH THE BADLY-NOURISHED INFANTS WERE MEMBERS.

In the 46 families there had been 243 births, an average of 5·3 per family.

Of the 243 children born 158 were alive, whereas 85 had died in childhood. This means that actually 34·9 per cent. of the offspring of these mothers were dead. This represents a death-rate of 349 per 1,000, a condition simply appalling.

HOUSE—CONDITION OF.

30 of the houses were in a decidedly dirty condition at the time of visit. Only 16 were clean, or comparatively so.

HOUSE—SIZE OF.

29 families occupied one-apartment dwellings. In these there were 82 children alive. (Rate, including parents, 4·8 per house.)

16 families occupied two-apartment dwellings. In these there were 70 children alive. (Rate, including parents, 6·3 per house, or 3·1 per apartment.)

1 family occupied a three-apartment dwelling. In this house there were 6 children alive. (Rate, including parents, 8 per house, or 2·6 per apartment.)

INFANTS' MILK DEPOT.

A depot for the preparation of milk suitable for infants was opened on the 17th June at 68 Osborne Street, and a summary of the work to the end of the year is contained in the section of the Report which follows. Appended to the summary are reprints of the leaflet of instructions issued to each purchaser of milk and of the proportions in which the milk is prepared for the several months of infant life.

SUMMARY OF WORK OF DEPOT, JULY TO DECEMBER 31ST, 1904.

Table (a) shows the number of children registered at Osborne Street Depot up to 31st December, 1904, and includes 21 who were ultimately transferred to the distributing dairies in Bridgeton. In all, 314 cases were entered at the Depot, of whom 176 remained on the Registers at the end of the year. The bottom line of this table, read horizontally, shows that 44 children left within a week's time, 11 within

2 weeks, 20 within 3 weeks, 14 within 4 weeks, 18 were continued till the third month, 11 to the fourth month, and 5 over 4 months. Similarly the ages may be read in the last vertical column, which shows that 85 of the total were under a month at entry, 54 under 2 months, &c. It is satisfactory to note that a large majority of the children are in the early months.

Table (b) contains a statement of the reasons, so far as known, for the withdrawal of certain children.

Table (c) shows the number of children from several districts of the city. As was to have been expected, the largest proportion is drawn from districts in the immediate neighbourhood of the Depot, such as the Central, and Southern east of Eglinton Street.

Table (d) is limited to the working expenditure only, and does not include any sum for rent, taxes, heating, lighting, or installation of apparatus, bottles, baskets, &c.

Up till the end of December only two distributing dairies, in addition to the Depot, were in operation, and these were situated in Bridgeton and Calton Districts; but, early in January, two others were opened in Cowcaddens District.*

Attention may be directed to the portion of *Table (d)* which shows the average daily number of baskets distributed from the Depot and dairies respectively during each of the months, July to December.

Visitation of Households to which Milk is being sent.—This must be regarded as an essential part of the work if it is to have any educational value. Hitherto it has been quite impossible to obtain through the distributing dairies such information as is recorded in the Register kept at Osborne Street Depot, or, indeed, any information whatever. In this latter respect we have been considerably helped by the voluntary action of the Charity Organisation Society, many of whose members have manifested considerable interest in the work of the Depot. Miss Rutherford, Miss McKnight, Mrs. Fingland, and Miss Denholm, hon. secretaries of branches of the Society, have from time to time forwarded reports on the condition of the houses and families; and the general impression which is created by their perusal is that, while here and there the Depot supply does reach some of the children in households for whom it was primarily intended, by far the greater number of children come from households where, in any case, they would have been sure of the best care which their parents could have given them, and among whom, could they be dealt with statistically, the infantile death-rate would most likely be found to be a favourable one.

It would, I think, be definitely to the advantage of the whole movement to encourage auxiliary aid of this character, and especially in connection with that portion of the work which is conducted through the distributing dairies. At the Depot a register is kept containing a carefully prepared record of the essential facts appertaining to each child registered, and I am having a card prepared on similar lines, which, with the committee's approval, might be used for all obtaining the supply through the dairies.

* The dairies from which infants' milk may now (July, 1905) be obtained are 9 in number, viz. :—

Ward	Ward
I. 376 London Road.	IXA. 335 Govan Street.
64A Muslin Street.	XIV. 463 St. Vincent Street.
58½ Stevenson Street.	XVI. 74 Cowcaddens.
VI. 140 Garngad Road.	304 Garscube Road.
VIII. 56 Parliamentary Road.	

TABLE (a)—Cases recorded at Depot from 1st July to 31st December, 1904, showing Ages of Children at date of entry, with Period of Supply of those who left before 31st December, 1904, and the Number at each Age of those still remaining at the same date.

AGE AT ENTRY.	LENGTH OF SUPPLY OF THOSE WHO LEFT BEFORE 31ST DECEMBER, 1904.									Number at each Age remaining at 31st December, 1904.	TOTAL NUMBER SUPPLIED.
	Less than One Week.	One Week.	Two Weeks.	Three Weeks.	One Month.	Two Months.	Three Months.	Four Months.	Total.		
Less than											
1 Month, ...	10	5	6	4	5	8	3	2	43	42	85
2 Months, ...	7	2	4	2	5	3	1	—	24	30	54
3 Months, ...	5	1	2	2	2	3	—	—	15	31	46
4 Months, ...	2	—	3	—	1	2	1	—	9	20	29
5 Months, ...	2	—	2	3	—	1	2	—	10	18	28
6 Months, ...	8	—	3	1	—	—	1	—	13	10	23
7 Months, ...	2	1	—	—	1	—	—	1	5	8	13
8 Months, ...	1	—	—	—	1	—	—	—	2	8	10
9 Months, ...	4	2	—	2	—	1	3	1	13	1	14
10 Months, ...	2	—	—	—	—	—	—	—	2	7	9
11 Months, ...	1	—	—	—	—	—	—	1	2	1	3
Total, ...	44	11	20	14	15	18	11	5	138	176	314

TABLE (b).—(a) Analysis of Entries with regard to withdrawal or continuance.

(1.) Still remaining on Register of Depot at 31st Dec., 1904.	(2.) Transferred to distributing dairies.	(3.) Died.	(4.) Left without giving reasons.	(5.) Left for various reasons. See (b).	(6.) TOTAL.
155	21	18	76	44	314
176		138			

(b) Details of Column (5).

Milk not agreeing with child.	Depot too far away.	Removed from Glasgow.	Stopped by doctor's orders.	Child refuses to take milk.	To be nursed again by mother.	Mother in prison.	Objects to Weighing. *	Now better and to resume food.	To Hospital.	Because of no Improve- ment.
17	5	3	3	5	3	1	2	1	2	2

* Because of trouble in dressing and car fare.

TABLE (c).

Residence of Children supplied.	No.	Residence of those who left.	No.
South (East of Eglinton Street), ...	110		
South (West of Eglinton Street), ...	22	Southern District, ...	65
Anderston and West, ...	23	Anderston District.	13
Cowcaddens and Garscube Road, ...	13	Cowcaddens District, ...	8
Maryhill, ...	2	Maryhill District, ...	1
Springburn, ...	7	Springburn District.	4
Eastern, ...	25	Eastern District, ...	3
Townhead, ...	25	Townhead District, ...	3
Central, ...	78	Central District, ...	20
Rutherglen, ...	1	Rutherglen, ...	1
Paisley, ...	1	Paisley, ...	1
Partick, ...	3	Kinning Park, ...	1
Kinning Park, ...	1		120
Tollcross, ...	1		
Plantation, ...	1		
Kirkintilloch, ...	4		
	314		

TABLE (d).—Statement of Working Expenses,* 1st July to 31st December, 1904.

INCOME.				EXPENDITURE.			
Cash Drawings at Depot, ...	...	£185	19 2	Milk, ...	...	£281	14 2½
„ „ at Dairies, ...	...	149	5 5	Sugar, ...	...	4	10 6
				Teats, ...	...	12	6 10
				Cylinders of CO ₂ , ...	...	4	13 4
				Commission on Sales to Dairies, ...	...	20	1 8
Deficit, ...	...	35	2 9½	Van Hire for Dairies, ...	...	47	0 10
		£370	7 4½			£370	7 4½
Wages, ...				£174 8 2			
Deficit in Milk Sales, ...				35 2 9½			
Total Working Deficit, ...				£209 10 11½			

* No sum for Rent, Taxes, Heating and Lighting, or Apparatus (including Bottles and Baskets) is here included.

Statement showing average daily amount of Milk received and average number of Baskets issued, July to December, 1904.

MONTH, 1904.	Average daily number of gallons of milk received.	Average daily number of baskets issued by Depot.	Average daily number of baskets issued by Dairies.	Total baskets issued daily.
July, ...	8 gallons,	23 baskets.	...	23 baskets.
August, ...	26 „	54 „	77 baskets.	131 „
September, ...	38 „	99 „	84 „	183 „
October, ...	47 „	123 „	79 „	202 „
November, ...	60 „	147 „	102 „	249 „
December, ...	60 „	147 „	106 „	253 „

(Leaflet issued to Purchasers.)

INFANTS' MILK DEPOT.

68 OSBORNE STREET (OFF SALTMARKET).

This Milk is prepared for Infants whose Mothers are not able to suckle them.

1. All charges for a supply of above milk are payable in advance :—

	Per Day.	Per Week.
For infants under 3 months,	- 2d.	- 1/2
„ „ under 6 months,	- 2½d.	- 1/5½ 6-oz. bottles.
„ „ over 6 months, -	- 3d.	- 1/9 7-oz. bottles.

The Central Depot is open from 11 a.m. to 6 p.m. on week days. **A two days' supply of milk will be given out on Saturdays.**

2. The milk will be supplied in bottles in a basket, each bottle containing sufficient milk for one meal, the amount varying with the age of the child. Infants under two months receive 9 bottles per day; older children receive fewer bottles, as they should be fed less frequently.

3. If children are sent for the milk, they must be warned not to tamper with the stoppers of the bottles. **On no account must a bottle be opened until the infant is ready to be fed.**

4. Every person using the milk will be supplied with a teat, which must be kept **scrupulously clean**. After use, the teat should be thoroughly washed in soda and hot water, then rinsed in cold water, and afterwards placed in a jar of clean cold water, where it should be kept until required for the next meal.

5. Just before use each bottle should be placed **unopened** in a basin or jug of hot water for about five minutes until it is warmed. The bottle should then be opened and the teat put on. The child must be fed **at regular intervals**, and **fed from these bottles only**. On no account should any other feeding bottle be used.

6. When all the milk in one bottle is not used, what is left must not be warmed again, but a fresh bottle opened for the next meal. Where there are other children this surplus milk may be given to them.

7. Infants under two months should be fed every two hours during the day and every four hours at night. Each time a fresh bottle must be used.

8. Should the milk not agree with the child, this should, without fail, be reported at the Depot.

9. **On no account should bread or any other food be given**, as the milk if regularly given, will be quite sufficient for the needs of any infant; but it may be used to supplement mother's milk. Give the milk very slowly, and train the child not to suck quickly. **Never give it tea, coffee, or cocoa**. Should it cry between meals one or two teaspoonfuls of clean cold water may soothe it.

10. After the bottle has been emptied it should be well rinsed out with water.

11. The child should be brought once a fortnight to be weighed, and the mother will be furnished with a record thereof.

12. Breakages will be charged at the rate of 1d. per bottle, and damage to baskets must be made good.

13. All bottles, stoppers, baskets, teats, and rubber rings not returned to the Depot will be charged full value.

14. The presence in a house of Infectious Disease, such as Measles, Whooping-cough, Chickenpox, Mumps, Diphtheria, Scarlet Fever, Smallpox, Enteric Fever, Typhus Fever, must be at once notified to the Medical Officer of Health.

N.B.—The milk must never be used in preference to that of a healthy mother, which is the best of all foods for young infants.

(New Branch Depots will be opened as required.)

A. K. CHALMERS,
Medical Officer of Health.

Sanitary Chambers.
Glasgow, June, 1904.

COMPOSITION OF MILK SUPPLIED.

Age.	Single Quantity.	Dilution.	Number of Bottles.	Quantity of Pure Milk.
1 to 2 weeks ...	1½ oz. ...	1 to 1 ...	9 ...	6¾ oz. Milk.
2 to 8 weeks ...	3 oz. ...	1 to 1 ...	9 ...	13½ oz. Milk.
2 to 3 months ...	3½ oz. ...	2 to 1 ...	9 ...	20¾ oz. Milk.
3 to 5 months ...	4½ oz. ...	2 to 1 ...	9 ...	30 oz. Milk.
5 to 7 months ...	5½ oz. ...	3 to 1 ...	9 ...	36 oz. Milk.
Over 7 months ...	7 oz. ...	3 to 1 ...	7 ...	36 oz. Milk.

2½ oz. Cream, 1½ oz. Sugar, ⅓ oz. Salt to each gallon of mixture.

RESULT OF INQUIRY INTO THE CONDITION OF CHILDREN
FED ON DEPOT MILK.

During the winter considerable help was rendered by the visitors of the Charity Organisation Society in certain districts of the City in ascertaining the condition of the households of families obtaining the depot milk, and the results of their inquiries into 144 cases admit of the following tabulation. The analysis is not complete, but it serves to indicate how large a number of these infants come from well-conducted and cleanly households. The ultimate value for the purposes of administration, however, concerns the number of infants who come from dirtily-kept houses, or are not thriving. In order to consolidate this line of inquiry by securing uniformity of information, a card has been introduced, copy of which is appended.

SUMMARY OF ALL THE CHARITY ORGANISATION SOCIETY'S REPORTS UP TILL
25TH MAY, 1905.

Total number of cases visited,	...	...	...	...	...	...	...	144
Age in months—								
Under 1 month,...	...	...	...	...	...	...	...	11
1—2 months,	...	...	...	...	...	...	...	10
2—3 „	...	...	...	...	...	...	...	14
3—6 „	...	...	...	...	...	...	...	30
6—9 „	...	...	...	...	...	...	...	12
9 months and upwards,...	...	...	...	...	...	...	...	25
How fed previously—								
Nursed, ...	...	...	...	...	...	...	...	38
Bottle—Cow's milk,	...	...	...	...	...	...	...	6
Other artificial foods,	...	...	...	...	...	...	...	3
State of health on beginning Depot milk—								
Diarrhoea,	...	...	...	...	...	...	...	1
Not thriving,	...	...	...	...	...	...	...	40
Other diseases,	...	...	...	...	...	...	...	12
Reason for joining Depot—State of health of mother—								
Ill health,	...	...	...	...	...	...	...	21
No milk,...	...	...	...	...	...	...	...	24
At work,...	...	...	...	...	...	...	...	7
Dead, ...	...	...	...	...	...	...	...	5
Other causes,	...	...	...	...	...	...	...	17
Number of other children—								
Living, ...	...	...	...	...	...	...	...	385
Dead, ...	...	...	...	...	...	...	...	124
Age of eldest born.								
Is dairy milk supplemented—								
Yes, ...	...	...	...	...	...	...	...	20
No,								
By what ?								

Condition of house—

Size of house in rooms—

1 apartment,	...	...	...	...	...	...	...	12
2 apartments,	...	...	...	...	...	...	...	36
3 ,,	...	...	...	...	...	...	...	9
4 ,, and upwards,	...	...	...	...	...	...	...	6

How kept—

Dirty,	...	...	...	...	...	...	...	28
Clean,	...	...	...	...	...	...	...	65

Is child being taken care of—

Yes,	...	...	...	...	...	...	...	70
No,	...	...	...	...	...	...	...	6

Effect on child—

Thriving,	...	...	...	...	...	...	...	89
Not thriving,	...	...	...	...	...	...	...	23

Summary of occupations of fathers—

Mason,	...	...	...	...	...	...	...	1
Painters,	...	...	...	...	...	...	...	3
Moulder,	...	...	...	...	...	...	...	1
Postman,	...	...	...	...	...	...	...	1
Engineers,	...	...	...	...	...	...	...	4
Bakers,	...	...	...	...	...	...	...	2
Fireman, at sea,	...	...	...	...	...	...	...	1
Riveters,	...	...	...	...	...	...	...	2
Tile layer,	...	...	...	...	...	...	...	1
Boilermakers,	...	...	...	...	...	...	...	2
Storeman,	...	...	...	...	...	...	...	1
Lithographer,	...	...	...	...	...	...	...	1
Labourers,	...	...	...	...	...	...	...	9
Dock labourers,	...	...	...	...	...	...	...	3
Railway labourer,	...	...	...	...	...	...	...	1
Fitter's helper,	...	...	...	...	...	...	...	1
Cabinetmaker,	...	...	...	...	...	...	...	1
Coalman,	...	...	...	...	...	...	...	1
Soldier,	...	...	...	...	...	...	...	1
Collector and salesman,	...	...	...	...	...	...	...	1
Barman,	...	...	...	...	...	...	...	1
Licensed grocer,	...	...	...	...	...	...	...	1
Brass finisher,	...	...	...	...	...	...	...	1
Plumber,	...	...	...	...	...	...	...	1
Iron dresser,	...	...	...	...	...	...	...	1
Iron turner,	...	...	...	...	...	...	...	1
Carter,	...	...	...	...	...	...	...	1
Railway driver, in South Africa,	...	...	...	...	...	...	...	1
Car conductor,	...	...	...	...	...	...	...	1
Hawker,	...	...	...	...	...	...	...	1
Clerk,	...	...	...	...	...	...	...	1
Odd work,	...	...	...	...	...	...	...	1
Works in Singer's,	...	...	...	...	...	...	...	1
,, electrical place,	...	...	...	...	...	...	...	1
Old clothes' store,	...	...	...	...	...	...	...	1

If Depot milk stopped, why?

(Card now in use.)

WARD.....

No.....

INFANTS' MILK DEPOT, 68 OSBORNE STREET.

1. Date of entry,..... 2. Date of ceasing,.....
3. Reason for ceasing,.....
4. Name and sex,.....
5. Age in months,.....
6. Present address,.....
7. House—No. of apartments,..... 7A. Clean or dirty,.....
8. Reason for joining Depot.
Health of mother—(a) Ill health ; (b) No milk ; (c) At work ; (d) Dead.
- 8A. Health of child— (a) Diarrhoea ; (b) Not thriving ; (c) Other causes.
9. How fed previously ?—(a) Breast ; (b) Cow's milk ; (c) Other food.
10. Is dairy milk supplemented ?.....By what ?.....
11. Is milk used regularly ?.....
12. Is child fed out of bottle supplied ?.....
13. Any illness during supply,.....
14. Any previous illness,.....
15. Any obvious rickets in family,.....
16. No. of children living,..... Age of first-born,.....
- 16A. How nursed ?—Breast,..... Artificial,.....
17. No. of children dead,.....
- 17A. How nursed ?—Breast,..... Artificial,.....
18. Is child being taken care of ?—Yes,..... No,.....
19. Result of feeding—Thriving,..... Not thriving, ...
20. Father's occupation and wages,.....
21. Any lodgers kept ?.....

Signature of Visitor,.....

Date.....

On the reverse side of the Card space is provided for "Remarks" and a register of weights.

INFECTIOUS DISEASES.

During the year 16,333 cases of infectious disease were registered and dealt with by the Department. This represents a rate equal to 21 per 1,000 of the population, which is the same as in 1903. Of the total, 5,185, or 31·7 per cent., were treated in hospital. The varying rates of incidence in the several wards are shown in Table VII., but it must be remembered that these afford an accurate attack-rate for those diseases only which are notifiable under the Infectious Diseases (Notification) Act. On the other hand, for measles and whooping-cough, which are here grouped with phthisis and anthrax in the column "All others," the rates given indicate only the cases known and dealt with.

The composition of the rate is shown in the following Table, and for comparison the corresponding figures for 1903 are introduced:—

GLASGOW, 1904.—CASE-RATE PER MILLION OF THE POPULATION FOR CERTAIN ZYMOPTICS AND FOR ALL CASES OF INFECTIOUS DISEASES REGISTERED.

YEAR.	Typhus Fever.	Enteric Fever.	Continued and Undefined.	Puerperal.	Smallpox.	Scarlet Fever.	Diphtheria and Membranous Group.	All Others.	TOTAL.
1903, ...	41	1,207	22	138	373	2,597	926	15,776	21,080
1904, ...	34	800	39	113	1,108	2,003	824	15,873	20,794
+ Differences, } 1904, }	...	...	17	...	735	...	...	97	...

If reference be made to Table V. in the Appendix, the number of cases occurring and of those removed to hospital in each ward will be found, and in Table VI. the distribution of these cases throughout the several months of the year.

TABLE VII.

GLASGOW, 1904.—CASE-RATE* per Million for certain ZYMOTICS and for ALL CASES registered in each MUNICIPAL WARD.

MUNICIPAL WARDS.	FEVERS.				Smallpox.	Scarlet Fever.	Diphtheria and Membranous Croup.	† All other Causes.	TOTAL.
	Typhus.	Enteric.	Continued and Undefined.	Puerperal.					
1. Dalmarnock, ...	20	704	59	195	3,303	1,075	860	14,913	21,128
2. Calton, ...	175	927	25	25	1,477	1,603	726	14,023	18,981
3. Mile-end, ...	46	781	23	115	2,780	1,494	643	14,246	20,128
4. Whitevale, ...	...	823	...	176	1,352	1,441	353	9,908	14,053
5. Dennistoun, ...	56	809	...	84	781	2,344	642	7,647	12,363
6. Springburn, ...	...	521	...	91	929	1,518	521	34,846	38,426
7. Cowlairst, ...	198	626	...	66	231	1,384	1,022	31,249	34,776
8. Townhead, ...	...	794	...	74	670	2,308	695	18,460	23,001
9. Blackfriars, ...	43	684	86	214	1,839	1,925	727	11,849	17,367
10. Exchange, ...	...	...	...	...	1,348	337	...	4,043	5,728
11. Blythswood, ...	...	...	263	...	788	788	1,050	4,201	7,088
12. Broomielaw, ...	...	1,547	103	103	5,364	1,341	206	14,133	22,798
13. Anderston, ...	131	816	294	33	1,045	3,101	947	20,532	26,897
14. Sandyford, ...	...	384	...	38	691	1,919	806	16,886	20,724
15. Park, ...	...	615	...	77	230	3,726	768	7,221	12,637
16. Cowcaddens, ...	...	1,169	25	229	788	1,118	890	14,666	18,886
17. Woodside, ...	...	1,398	...	44	399	2,108	976	12,916	17,842
18. Hutchesontown, ...	...	1,565	24	144	1,083	2,022	554	21,857	27,250
19. Gorbals, ...	54	857	...	161	964	1,259	696	9,640	13,629
20. Kingston, ...	...	702	225	140	1,151	1,404	477	10,503	14,603
21. Govanhill, ...	30	325	30	207	885	3,187	944	10,860	16,468
22. Langside, ...	...	302	...	60	211	4,076	2,023	10,900	17,573
23. Pollokshields, ...	...	169	...	...	113	2,820	677	7,049	10,828
24. Kelvininside, ...	...	387	48	...	...	2,325	1,453	3,729	7,943
25. Maryhill, ...	25	1,143	25	203	102	2,260	1,270	31,821	36,850
CITY, ...	34	800	39	113	1,108	2,003	824	15,873	20,794

* The populations on which these rates are calculated include Institutions and Harbour.

† Measles, Whooping-cough, Chickenpox, Phthisis, and Anthrax.

INFECTIOUS DISEASES (NOTIFICATION) ACT.

The cost per 1,000 of the population for Notification Fees since 1891 is as follows:—

GLASGOW.—AMOUNT PER 1,000 OF POPULATION OF FEES FOR CERTIFICATES UNDER THE INFECTIOUS DISEASES (NOTIFICATION) ACT, 1899, FOR EACH YEAR FROM 1891.

Year.	Amount.		
	£	s.	d.
1891, ...	1	1	10·4
1892, ...	1	6	1·2
1893, ...	1	6	9·2
1894, ...	1	4	8·7
1895, ...	1	1	5·0
1896, ...	0	18	0·1
1897, ...	0	18	0·1
1898, ...	1	0	9·0
1899, ...	1	3	10·0
1900, ...	1	2	11·0
1901, ...	1	4	5·9
1902, ...	0	16	7·4
1903, ...	0	14	0·5
1904, ...	0	13	4·2

PRINCIPAL ZYMOTIC DISEASES.

The number of deaths arising from the principal zymotic diseases—smallpox, diphtheria, scarlet fever, typhus, enteric, and undefined fevers, measles, whooping-cough, and diarrhœa—in 1904 was 1,924, representing an annual death-rate of 2·450 per 1,000 living, as compared with 2·507 in 1903.

The corresponding rates for several periods were—

1881-90, ...	3·600 per 1,000 living.
1891-1900, ...	3·282 „
1900, ...	3·013 „
1901, ...	3·773 „
1902, ...	2·072 „
1903, ...	2·507 „
1904, ...	2·450 „

In the following Table the corresponding rates for several towns are given:—

PRINCIPAL ZYMOTIC DISEASES.*						Death-rate per 100,000.	
						1894-1903.	1904.
Glasgow, ...	...	...	...	...	...	303	168
Edinburgh, ...	...	...	...	...	...	241	110
Dundee, ...	...	...	...	...	...	230	151
Aberdeen, ...	...	...	...	...	...	240	179
London, ...	...	...	...	...	...	251	218
Liverpool, ...	...	...	...	...	...	328	466
Manchester, ...	...	...	...	...	...	320	309
Birmingham, ...	...	...	...	...	...	293	342

* See note under Births, p. 15.

In comparing these figures it is to be noted that the Registrar-General for England includes smallpox, measles, scarlet fever, diphtheria, whooping-cough, “fever,” and diarrhœa; whereas the Registrar-General for Scotland omits diarrhœa from his group, but adds influenza.

In Table VIII. the number of deaths and the death-rate from diseases of this class are stated for each of the wards, and the following summary will show the constitution of the zymotic death-rate in those wards in which the combined rate much exceeds the mean rate for the population as a whole :—*

GLASGOW, 1904.—ZYMOTIC DEATH-RATE per MILLION in certain WARDS whose RATES EXCEED the MEAN RATE of the whole City.

MUNICIPAL WARDS.	Total Zymotics.	Smallpox.	Diphtheria.	Scarlet.	Typhus.	Enteric.	Undefined.	Measles.	Whooping- cough.	Diarrhoea.
Dalmarnock, -	3,317	336	118	59	...	59	...	178	869	1,698
Calton, -	3,529	105	158	53	26	79	...	342	1,080	1,686
Mile-end, -	3,381	185	69	139	23	93	...	440	1,019	1,413
Springburn, -	3,570	71	142	118	...	118	...	1,324	1,111	686
Broomielaw, -	3,091	124	124	...	...	...	...	494	989	1,360
Anderston, -	3,535	103	240	172	...	172	...	446	926	1,476
Cowcaddens, -	3,324	52	236	52	...	157	...	733	890	1,204
Hutchesontown, -	3,690	96	121	48	...	241	...	555	1,785	844
City, -	2,450	85	116	88	6	107	1	418	731	898

* The very large proportion of this rate which is contributed by Measles, Whooping-cough, and Diarrhoea will be seen by adding together the rates for these diseases and comparing it with the total Zymotic rate given in the first column.

TABLE VIII.

GLASGOW.—PRINCIPAL ZYMOTIC DISEASES.

MUNICIPAL WARDS.	1903.		1904.	
	Deaths.	Death-rate per Million.	Deaths.	Death-rate per Million.
1. Dalmarnock, ...	197	3,873	168	3,316
2. Calton, ...	161	4,132	134	3,529
3. Mile-end, ...	174	4,031	146	3,381
4. Whitevale, ...	91	2,694	97	2,932
5. Dennistoun, ...	61	1,876	60	1,752
6. Springburn, ...	93	2,248	151	3,571
7. Cowlairs, ...	64	2,149	85	2,802
8. Townhead, ...	105	2,626	76	1,931
9. Blackfriars, ...	66	2,859	60	2,667
10. Exchange, ...	2	896	2	894
11. Blythswood, ...	4	1,112	5	1,435
12. Broomielaw, ...	38	4,558	25	3,090
13. Anderston, ...	67	2,275	103	3,534
14. Sandyford, ...	59	2,227	61	2,351
15. Park, ...	21	842	17	674
16. Cowcaddens, ...	157	3,929	127	3,325
17. Woodside, ...	96	2,103	93	2,064
18. Hutchesontown, ...	114	2,716	153	3,690
19. Gorbals, ...	82	2,244	63	1,723
20. Kingston, ...	92	2,647	78	2,231
21. Govanhill, ...	63	1,865	67	1,977
22. Langside, ...	29	979	24	735
23. Pollokshields, ...	12	707	5	282
24. Kelvinside, ...	7	371	13	654
25. Maryhill, ...	59	1,622	71	1,890
— Institutions and Harbour, ...	46	...	40	...
CITY, ...	1,960	2,507	1,924	2,450

SECTION II.

SMALLPOX.

The cases of smallpox registered and dealt with during the year number 870, and the deaths 67, representing a case-rate of 1,108 and a death-rate of 85 per million, as compared with 292 cases and 24 deaths, representing a case-rate of 373 and a death-rate of 31 per million for the year 1903.

Of the 862 cases occurring, 99 per cent. were treated in hospital, and 64, or 95·5 per cent., of the deaths occurred in hospital also. No cases discovered before recovery or death were dealt with at home, and the balance, both of cases and deaths, treated to a termination outside the hospital belong to this class.

The mortality from smallpox for several periods in Glasgow and other towns in England and Scotland is shown in the following Table :—

SMALLPOX.*							Death-rate per 100,000.	
							1894-1903.	1904.
Glasgow,	...	...	...	...	...	...	4·7	9·0
Edinburgh,	...	...	...	...	...	...	2·7	—
Dundee,	...	...	...	...	...	...	0·1	—
Aberdeen,	...	...	...	...	...	...	0·2	—
Paisley,	...	...	...	...	...	...	0·4	1·0
Greenock,	...	...	...	...	...	...	0·6	38·0
London,	...	...	...	...	...	...	0·4	1·0
Liverpool,	...	...	...	...	...	...	0·3	—
Manchester,	...	...	...	...	...	...	0·1	2·0
Birmingham,	...	...	...	...	...	...	0·4	—

* See footnote, p. 15.

The attack and death rates in each ward is given in Table IX., which follows :—

GLASGOW.—SMALLPOX 1903-04.

Map showing attack-rate per 1000 in each Ward, and situation of
Smallpox Hospital.

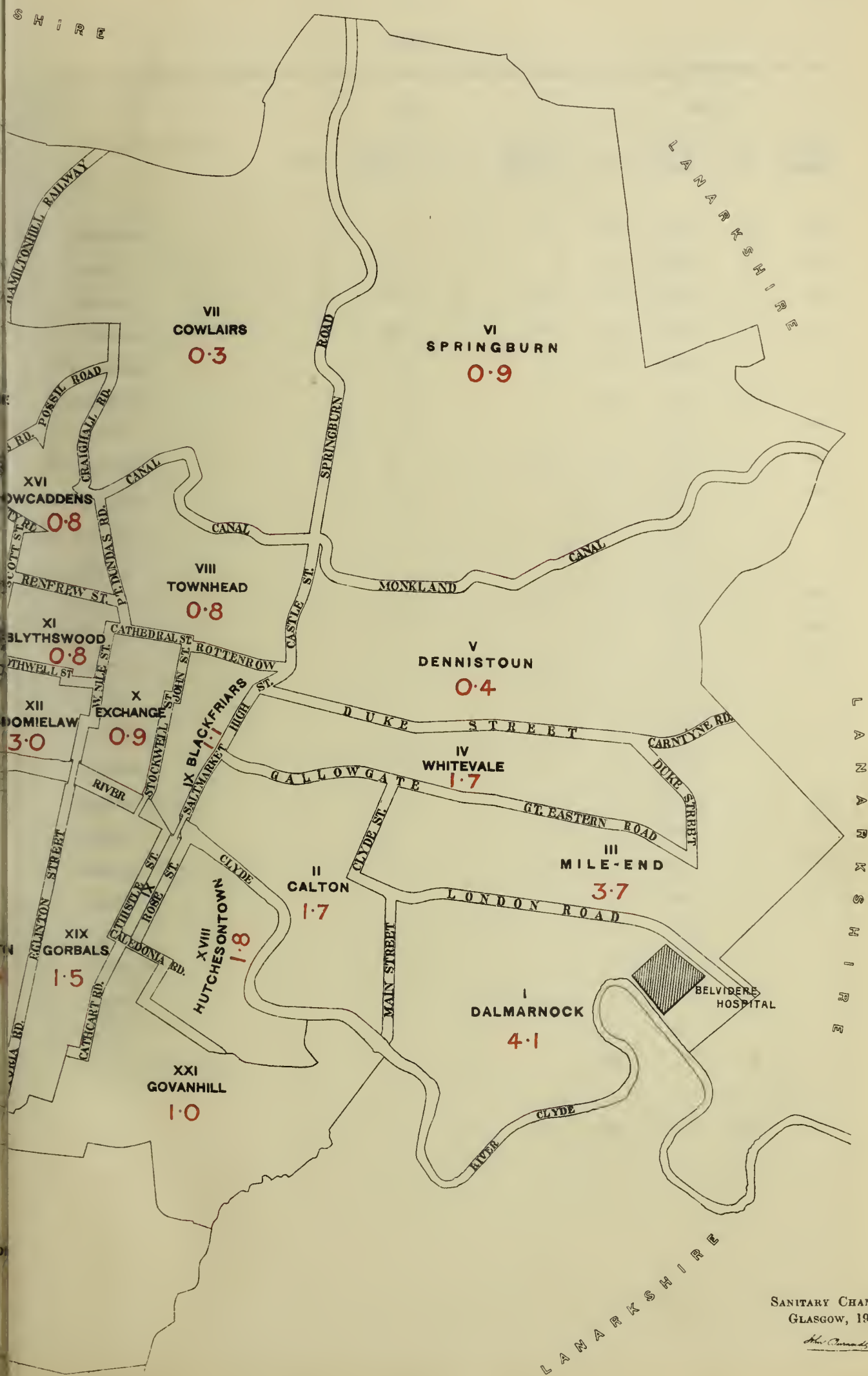


TABLE IX.

GLASGOW.—SMALLPOX.—CASES and CASE-RATES and DEATHS and DEATH-RATES in each MUNICIPAL WARD.

MUNICIPAL WARDS.	1903.				1904.			
	Cases.	Case-rate per Million.	Deaths.	Death- rate per Million	Cases.	Case-rate per Million.	Deaths.	Death- rate per Million.
1. Dalrnarnock, ...	40	777	3	59	164	3,238	17	336
2. Calton, ...	20	487	...	...	47	1,238	4	105
3. Mile-end, ...	38	872	3	69	121	2,802	8	185
4. Whitevale, ...	21	602	1	30	36	1,088	4	121
5. Dennistoun, ...	4	117	...	...	12	350	...	...
6. Springburn, ...	3	70	...	...	33	780	3	71
7. Cowlairs, ...	3	101	...	...	7	231	2	66
8. Townhead, ...	12	291	1	25	22	559	2	51
9. Blackfriars, ...	7	294	...	...	34	1,511	3	133
10. Exchange, ...	...	...	...	...	1	447	...	...
11. Blythswood, ...	...	...	...	...	3	861	...	...
12. Broomielaw, ...	3	316	2	240	24	2,966	1	124
13. Anderston, ...	3	98	...	...	12	412	3	103
14. Sandyford, ...	14	527	2	75	18	694	3	116
15. Park, ...	...	...	...	...	3	119	...	...
16. Cowcaddens, ...	7	170	...	...	26	681	2	52
17. Woodside, ...	8	175	2	44	18	399	...	...
18. Hutchesontown, ...	20	476	3	72	45	1,085	4	96
19. Gorbals, ...	12	321	1	27	36	985	3	82
20. Kingston, ...	9	254	1	29	37	1,058	2	57
21. Govanhill, ...	8	237	...	...	30	885	2	59
22. Langside, ...	1	33	...	...	6	184	...	...
23. Pollokshields, ...	...	...	...	...	2	113	...	...
24. Kelvinside, ...	2	102	...	...	...	...	...	...
25. Maryhill, ...	...	...	...	...	3	80	...	...
— Institutions and Harbour,	57	...	5	...	130	...	4	...
CITY, ...	292	373	24	31	870	1,108	67	85

It will be convenient in considering the distribution of cases occurring during 1904 to deal with them as forming part of the outbreak which began in the autumn of 1903 and continued until the next.

SMALLPOX, 1903-1904.

DISTRIBUTION OF THE OUTBREAK, AGE INCIDENCE OF THE ATTACKS, AND FATALITY IN RELATION TO VACCINATION.

INTRODUCTORY.

A general review of the outbreak of 1903-04 may here be presented; but it has not been considered necessary to follow it in the detail which was adopted in connection with the prevalence of the disease during 1900-1902. The annexed Tables have, however, been constructed on somewhat parallel lines, so that corresponding information for both periods may be readily compared. This is of special interest in relation to what may be called the epidemic movement of the outbreak, its local distribution, and its fatality in relation to age and vaccination.

A feature of some interest in the present Report is the result of an inquiry established with the view of ascertaining the "vaccination record" of persons suffering from smallpox who presented no vaccination cicatrix, or such only as were of doubtful significance; and the results are presented in Table XV. In discussing this Table, occasion has been taken to refer to a circular issued by the Local Government Board in August, 1904, dealing with the question of infantile vaccination, and to the need for establishing a definite standard therefor, such as would be afforded by specifying a minimum number of successful insertions, or the area of vesiculation resulting therefrom.

INTERVAL OF FREEDOM FROM THE DISEASE.

Between August, 1902, and September, 1903, only one case of indigenous smallpox occurred in Glasgow. This occurred in May, 1903, in the wife of a seaman, who himself had developed the disease a few days after his return from a voyage to Spain, and was in the eighth day of his illness before its nature was recognised, and removal to hospital took place. Two other cases, also in seamen, had occurred in January and February, 1903; but, with these exceptions, Glasgow was free from smallpox during the period already indicated.

In September, 1903, however, it was introduced among the model lodging-house population on the south side of the river by a worker from Talla Waterworks, under circumstances which have already been described in the Report for that year.

For several weeks at the beginning of the outbreak no cases occurred among the general population; but during November, and more particularly as December advanced, the general population of certain districts was invaded; and, as the outbreak extended, its direction followed the main line of former prevalences.

As has been said, in the earlier weeks the cases had been wholly obtained from lodging-houses, so that of 31 cases removed to hospital up till the end of October, 1903, 4 only were from the general population. (See Table XI. and Diagram I.) Subsequently the proportions were reversed, and of 225 cases occurring during November and December, only 24 were of the lodging-house class. Of the total of 1,158 cases which occurred during the outbreak, 155, or 13 per cent., were of the model lodging-house population, which represents an attack-rate of 28.197 per 1,000 on the mean annual number resident therein during the two years. It is to be remembered, however, that this

population is composed almost wholly of persons at adult ages, and more susceptible in consequence than the general population, which is much younger. But even at the age which Table XIV. shows to be that of maximum incidence during the present attack, viz., ages 35-45, the attack-rate for the whole population was only 3·260 per 1,000. While, therefore, the model lodging-house population introduced the disease in the recent outbreak, and was directly responsible for the earlier phases of its spread, it suffered much in excess of the general population from the ravages of the disease.

In all, 1,180 cases were registered during the period, of which 13 occurred at home unrecognised as smallpox until death (which occurred in 5 cases), or the development of subsequent cases brought the nature of their illness to our knowledge. All the others were removed to hospital, where it was found that in 22* cases the eruption present, although simulating smallpox, proved to be due to some other cause. It is of importance to note in connection with these cases that *none of them contracted smallpox after admission to hospital*, the custom being to vaccinate on admission each patient regarding the nature of whose rash there existed any doubt. Save Table XI., those which follow deal with the remaining 1,158 cases.

Table X. contains a statement of the deaths and death-rates in Glasgow from smallpox since registration began in 1855.

Table XI. shows the ward and institutional distribution of the cases in successive fortnights during the outbreak. (See also Diagram I.)

Table XII.—In this Table the cases and deaths in each ward are shown, together with the attack and death-rates. The ward populations stated are the means of the annual estimates, which are based on the number of inhabited houses in 1903 and 1904. It will be remembered that in the 1900-2 outbreak the attack-rate for the City was 2·3 per 1,000; on the present occasion it was 1·5 per 1,000. In the earlier outbreak the attack-rate in the London Road Sanitary District was 9·97; in Barrowfield, 6·46; and in Calton, 4·24 per 1,000. By the adoption of the wards as sanitary districts, those of Dalmarnock, Mile-end, and Calton now represent generally the above-named districts, and here the attack-rate again is considerably in excess of that for the wards further distant from the hospital, and for the whole City, the figures for the wards just named being respectively 4·1, 3·7, and 1·7. Only one other ward presents an incidence corresponding to the higher rates here shown, viz., Broomielaw, where 25 cases occurred out of a population of 8,000, giving a rate of 3·04 per 1,000. But it should be explained that 12 of these cases were removed to hospital within one fortnight, and 10 at least were known to have been in association with a case of hæmorrhagic smallpox, which had proved fatal, and had not been recognised as smallpox until the occurrence of the disease among the patient's friends. In the map which is attached the case-rate is shown, as also the situation of the hospital. It must be remembered, however, that while the attack-rate is here calculated over the whole population, the incidence of the disease on the section among whom the disease occurred, viz., the proportion unprotected by recent vaccination, would be considerably greater, because a very large number of those (over 400,000) who were re-vaccinated during 1900-2 will still form part of the present population. If, instead of calculating the attack-rate over the whole population, it had been possible to calculate it on the susceptible proportion only, a higher attack-rate would be shown than occurred in the outbreaks of 1900-2. It is also worth remembering that the proportion re-vaccinated in 1901 in the districts immediately surrounding the hospital was greater than in the other districts where the disease was less prevalent. So that the greater incidence of attack in these districts on the present occasion is all the more striking.

* Of the cases removed under these conditions, 7 were scabies, 5 were lichen, while chickenpox and acne were each represented by 3 cases, syphilis and urticaria by 2 each, and impetigo by 1 case.

Table XIII.—This Table has been prepared on similar lines to Table VI. of the 1900-2 Report, page 36, save that the sexes have been stated separately in the present instance. It is a not uninteresting feature of the present outbreak that the virulence of the disease was considerably modified, the overhead case mortality being only 7·9, in place of 13·1 per cent.; while in the vaccinated it was 5·1, as compared with 9·1; among the unvaccinated, 29·2, as compared with 51·6; and among those whose vaccination was doubtful it was 21·2, as compared with 54·3. This abatement of virulence during the decline of an epidemic prevalence is in keeping with the course of epidemic diseases generally.

Table XIV.—In this Table, which corresponds with Table V., page 33, of the 1900-2 Report, it will be observed that the highest attack-rate occurred in the age-period 35-45, as compared with 25-35 at the earlier outbreak. Here again, however, the absence of information regarding the proportion at each age unprotected by re-vaccination must be remembered as undoubtedly influencing the result.

Table XV. shows the results of an enquiry into the vaccination history of persons suffering from smallpox who were unvaccinated, or doubtfully vaccinated, at the time of attack. As has been stated, during this outbreak enquiry was made into the vaccination record in every case of the disease admitted to hospital where no vaccination mark or one of doubtful character was present; there were in all 89 in the former and 66 in the latter category. The enquiry led to much correspondence with Registrars in many parts of the United Kingdom, and the results are given in the annexed Table. Most interest attaches to those contained in the column under the heading "Certified Successfully Vaccinated." Of 89 presenting no evidence of vaccination, 10 (of whom 8 were under 10 years of age) were found to have been certified as successfully vaccinated in infancy; and of 66, where the evidence of vaccination was doubtful, 20 (of whom 13 were under 10 years of age) had been similarly certified. On the receipt of information from the Registrars that successful vaccination had been certified, further enquiries, where possible, were made at the certifying practitioner for information as to the nature, quality, and age of the lymph used, its method of preparation, the nature and area of the resulting vesiculation, and generally for any information which might appear to have some bearing on the question at issue.

About the time this inquiry was begun the Local Government Board issued a circular to medical officers requesting to be supplied with information as it was obtained in each case, and, as the result of this and similar inquiries, the Board issued the following memorandum:—

"LOCAL GOVERNMENT BOARD FOR SCOTLAND.

"MEMORANDUM AS TO THE GRANTING OF CERTIFICATES OF
SUCCESSFUL VACCINATION.

"In considering the reports made to them by Medical Officers of Health regarding cases of smallpox, the Board have had their attention drawn to cases of children (the majority of whom were under five years of age) who presented no evidence of successful vaccination, either in the presence of local scars or in modification of the disease, although said by the parents to have been vaccinated. Similar cases have been observed in the course of the inspection of 'contacts.' Further inquiry led to the discovery that in many such cases a certificate of successful vaccination had been lodged with the Registrar. After investigation of the circumstances under which this occurred, the Board are satisfied that *considerable laxity exists in the granting by medical practitioners of such certificates*, in respect that they are not always founded on personal inspection of the child after a sufficient interval, and occasionally have even been signed at the time of the operation, when its result was unknown, and when subsequent inspection would have disclosed failure.

"A practitioner who grants a certificate of successful vaccination in such circumstances places himself in a very serious position. The certificate bears that the operation was performed by the person who signs it, and that it has succeeded. If in either respect the certificate is false, the signatory is liable to a criminal prosecution.

"The Court regards a certificate of vaccination by a medical practitioner as a matter of public importance. In the case of the Lord Advocate *v.* Webster, 27th September, 1872, 45 Jur. 3, the judge pointed out that a medical practitioner acting under the Vaccination Act is a public officer, with a public duty to perform. 'The medical practitioner is, by that Act, erected into an officer who is to serve the public, and give a certificate of successful vaccination, and that certificate is a permanent document entered on a public register, and is equivalent to a clean bill of health as regards the child. The charge here is that the doctor granted certificates of successful vaccination when he had not successfully vaccinated the children, and knew that he had not. . . . This must be regarded as a serious violation of public duty, involving punishment.' The result of the prosecution in that case was that the practitioner who had granted certificates of successful vaccination, though the vaccination had not taken effect, was convicted, and sentenced to four months' imprisonment.

"The Board desire to make it publicly known that if in future any case of this nature comes to their knowledge, it will be their duty to report it to the Crown, with a view to proceedings being taken.

(Signed) "G. FALCONAR STEWART,
"Secretary.

"Local Government Board,
"Edinburgh, 24th August, 1904."

IMPERFECT PRIMARY VACCINATION.

Attention having been directed to the insufficient vaccination marks presented by children admitted to hospital suffering from smallpox, occasion was taken in the course of ordinary visitation to measure the area and to note the character of the marks resulting from recent vaccination. Although the cases observed amount in all only to 10, they are suggestive of a degree of inefficiency in the performance of infantile vaccination, which can only be effectively dealt with by a minimum standard being fixed for the purposes of certification. The following details are illustrative of this:—

(All the marks are measured in tenths of an inch.)

(1) V.—1 very poor mark, $2 \times 2 = \cdot 03$ square inch; slightly glazed; not foveated; not depressed; not puckered; badly defined.

(2) M.G. (two children)—Baby, *æt.* 8 months—1 poor mark, $2 \times 3 = \cdot 04$ square inch; slightly glazed; not foveated; not puckered; slightly depressed; fairly well defined. Other child, *æt.* 3 years—1 poor mark, $3 \times 3 \cdot 5 = \cdot 08$ square inch; slightly glazed; not foveated; not puckered; not depressed; badly defined.

(3) R.—1 poor mark, $3 \times 4 = \cdot 09$ square inch; slightly glazed; slightly depressed; not foveated; not puckered; badly defined.

(4) M.—1 poor mark, $2 \cdot 5 \times 2 \cdot 5 = \cdot 04$ square inch; slightly glazed; not foveated; not depressed; not puckered; badly defined.

(5) B.—1 poor mark, $3 \cdot 5 \times 2 \cdot 5 = \cdot 06$ square inch; glazed; depressed; not foveated; not puckered; fairly well defined.

(6) O'D. (three children)—Baby—1 poor mark, $3 \times 3 = \cdot 07$ square inch; slightly glazed; not foveated; not depressed; not puckered; badly defined. Child, *æt.* $2\frac{4}{12}$ years—1 fair mark, $6 \times 4 \cdot 5 = \cdot 20$ square inch; slightly glazed; slightly foveated ($\frac{1}{4}$); not depressed; not puckered; well defined. Other child, *æt.* 4 years—vaccination mark absolutely invisible.

(7) P.—1 poor mark, $3 \cdot 5 \times 2 = \cdot 05$ square inch; glazed; slightly depressed; slightly puckered; not foveated; fairly well defined.

Table XVI.—The 30 persons referred to in Table XV. as having been certified successfully vaccinated are here included in the vaccinated group of Table XIII. Of these 6 died, and the effect of these deaths has been to raise

the death-rate per 1,000 at *all* ages from 5·1 to 5·5, which is quite inappreciable. As thus altered, a fatal case is shown to have occurred under six months of age; the case-mortality under five years of age is 18·2, and at ages 10-15 is 6·7. The change, in fact, in these earlier ages has been to reproduce the age-incidence of mortality in unvaccinated cases, and to establish in a convincing way the accuracy of regarding these clinically unvaccinated and doubtfully vaccinated persons as having, *de facto*, none of the protection afforded by vaccination.*

Table XVII. shows the age and sex distribution of all cases and the death-rate irrespective of vaccination.

IS SMALLPOX INFECTIOUS BEFORE THE APPEARANCE OF THE RASH?

Notwithstanding the widespread prevalence of smallpox in recent years, comparatively few opportunities have occurred of making any precise observation on the actual period when the smallpox patient becomes ineffective. In a limited way an observation of this character could be made in connection with the occurrence of the disease in one of the lodging-houses at the very beginning of the outbreak. In this instance the date of patient's sickening and that of the appearance of the rash could be definitely fixed; and there was no other probable explanation of the cases which followed. In this "Model" a series of 17 cases occurred between 15th and 21st October, the numbers sickening on the 15th, 16th, 17th, 18th, 19th, and 21st, being respectively 2, 3, 2, 4, 3, 3. The only reasonable explanation of an occurrence of this sort was that someone had been resident there in whom the disease was unrecognised, and a diligent search ended in the discovery, on 23rd October, of an inmate of the "Model" in question whose sickness had begun on 1st October. The eruption appeared on 3rd October, and on the twelfth day thereafter a series of 17 cases began among other residents, which, as has been said, had no other explanation. The interval suggests that during the pre-eruptive stage of the sickness the disease is not transferable by the ordinary means of infection at least.

QUESTION OF INFECTIVITY OF CONTACTS.

Closely associated with this question of infectivity of the sick is the freedom with which contacts are allowed to go to work while under observation.

Apprehension was frequently expressed that the freedom of movement permitted to persons who were known to have been in contact with smallpox was fraught with danger to the public, and a word or two in explanation of the light in which these persons are regarded for administrative purposes seems desirable.

The term "contact" covers all who have been, even in a remote way, associated with persons sick of the disease, but it is especially applicable to those of the affected household. It is frequently necessary, in order to carry out the disinfection of such a house, that all its inmates be removed to the reception-house; and it is often desirable to retain them there until the maximum period of incubation is passed. The chief reason for this is that, when smallpox does occur in persons who have for some days been exposed to infection before being vaccinated, the symptoms of the disease, should it develop, are frequently trivial, and their significance easily overlooked. Most persons, in this close association with smallpox, frankly accept vaccination; and after their clothing has been cleansed they are allowed to return to work.

There is no evidence to show that one who has been in this intimate association with smallpox, and who may develop the disease in ten or twelve days thereafter, is, during this interval, in an infectious state when the pre-

* See also observations on age-incidence in relation to doubtfully vaccinated cases, &c., in Report on Smallpox, 1900-02, page 35.

caution of dealing with his clothing has been observed. Consequently he is permitted to continue at work, on the express understanding that he is under daily observation.

LOW RATE OF ATTACK IN KNOWN CONTACTS.

During the continuance of the outbreak contacts to the number of 3,101 were placed in the reception-houses during the disinfection of their houses and for observation. Of these 14 were found, on more minute examination, to be already suffering from the disease, most of them in the early stages; and of the 3,087 remaining, 54, or 1·7 per cent., subsequently developed it. Considering that all these persons were found to have been exposed to the infection of smallpox, this smallness of the attack-rate is gratifying. Indeed, as has not infrequently been observed, it is not the known, but the unknown, contact with smallpox who forms the greatest public risk.

In striking contrast to this was the following incident which occurred in a model lodging-house:—

On the occurrence of a case here, and his removal to hospital on March 2nd, 1903, re-vaccination was urged on all the inmates. Not one of them, however, would accept, because of the probable interference with occupation which might result, and subsequently 13 of them sickened. All the staff of the "Model" had been re-vaccinated, and none were attacked.

The following Tables were compiled in hospital to show the severity of attack in relation to successful vaccination after infection in vaccinated, unvaccinated, and doubtfully vaccinated cases, and to the influence of a previous attack of smallpox. In all a 12 days' incubation period is assumed, and the protection afforded by a successful vaccination within 72 hours after exposure is shown by the absence of any case occurring after a longer interval than 9 days.

TABLE SHOWING IN CASES SUCCESSFULLY *Re-vaccinated after Infection* THE INFLUENCE OF THE RE VACCINATION ON THE SEVERITY OF THE ATTACK.

Number of Days before Sickening.	Day of Incubation Period.	Sparse.		Abundant.		Confluent.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
13	...	...	...	...	...	...	...
12	...	...	...	...	...	...	...
11	1	...	...	...	...	...	...
10	2	...	...	...	...	...	...
9	3	1	...	...	...	...	...
8	4	2	...	...	...	...	...
7	5	2	...	...	...	...	...
6	6	...	...	1	...	...	...
5	7	1	...	...	...	...	...
4	8	3	...	...	...	...	...
3	9	...	...	1	...	...	...
2	10	3	...	...	...	...	...
1	11	1	...	...	...	...	...
Day of Sickening.	12	1	...	...	...	...	...
		14	...	2	...	...	...

TABLE SHOWING IN "UNVACCINATED" AND "DOUBTFULLY" VACCINATED CASES, *Vaccinated after Infection*, THE INFLUENCE OF SUCH VACCINATION ON THE SEVERITY OF ATTACK.

Number of Days before Sickening.	Day of Incubation Period.	Sparse.		Abundant.		Confluent.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
13	...	...	...	...	...	...	...
12	...	...	...	...	...	...	...
11	1	...	...	...	...	...	...
10	2	...	...	...	...	...	...
9	3	...	...	...	...	...	...
8	4	...	...	...	...	...	...
7	5	2	...	1	1	...	...
6	6	2	...	1	1	...	...
5	7	1	...	2	1	...	...
4	8	1	1	...	...	...	...
3	9	...	...	...	...	...	...
2	10	2	...	...	...	1	1
1	11	...	...	...	...	...	...
Day of Sickening.	12	1	...	..	...	...	...
		9	1	4	3	1	1

TABLE SHOWING THE INFLUENCE OF *a Previous Attack of Smallpox* ON THE SEVERITY OF THE ATTACK.

Case.	Age.	Previous Attack.	Character of Attack.
No. 1	22	15 years ago	Sparse.
„ 2	34	30 „	Sparse.
„ 3	37	In childhood	Sparse.
„ 4	48	41 years ago	Abundant.
„ 5	47	46 „	Fairly abundant.
„ 6	69	In infancy	Very sparse.

TABLE SHOWING, IN CASES SUCCESSFULLY *Re-vaccinated before Infection*, THE INFLUENCE OF RE-VACCINATION ON THE SEVERITY OF ATTACK.

Case.	Age.	Primary Vaccination.	Date of Re-vaccination.	Character of Attack.
No. 1	38	2 Fair	2 years ago	Moderately abundant.
„ 2	40	1 „	4 „	Very sparse.
„ 3	35	1 „	7 „	Sparse.
„ 4	40	1 „	7 „	Very sparse.
„ 5	47	1 Poor	10 „	Sparse.
„ 6	38	2 Fair	14 „	Sparse.
„ 7	51	2 Poor	36 „	Semi-confluent (eruption aborted).
„ 8	48	1 Fair	42 „	Fairly abundant
„ 9	57	1 „	49 „	Sparse (eruption aborted).

Here it may be observed, before leaving these Tables, that Case No. 1 in the last one is the only illustration of an attack occurring in any of the 400,000 persons re-vaccinated during the outbreak of 1900-2.

CASES OCCURRING IN HOSPITAL.

In all 5 cases of the disease occurred in hospital, 2 of them being in children born there of smallpox mothers, and 3 among the hospital staff. The circumstances under which these latter occurred were referred to in the fortnightly report for 13th January, and are as follows:—

“It falls to be reported that three of the foregoing cases occurred in members of the Smallpox Hospital staff, two of them having only recently joined as cleaners, while the third, an assistant van driver, had been in the service of the Fever Hospital from March last, and was transferred to the Smallpox Hospital on 23rd December. The condition as to vaccination in each patient is as follows:—

“(1) M. H., van driver, was vaccinated in March (1903) with lymph, which gave a typical reaction up to the end of the papular stage, and then aborted. This being considered at the time unsatisfactory, and several others having presented similar appearances, it was intended that they should all be re-done; and this was carried out in the majority of cases, but the patient was missed. H. was transferred to the Smallpox Hospital staff on 23rd December, and sickened fourteen days thereafter. The eruption is ‘discrete,’ and much modified.

“(2) E. M. joined the staff on 23rd December, and was vaccinated same evening. As the result was unsatisfactory, the patient was re-done a week thereafter, although this proved too late to prevent attack, as the eruption of smallpox appeared on the night of the 6th January.

“(3) A. C. joined the staff along with E. M., and was vaccinated with precisely similar results, so that she also was re-done a week thereafter. She sickened on 6th January.

“While the above are to be regretted as affording illustrations of disease contracted where it is most readily preventable, it is to be observed that the unsatisfactory nature of the vaccination which was performed attracted the notice of the medical staff of the hospital in each case before the symptoms of smallpox became manifest. They are not illustrations of failure on the part of vaccination to protect from smallpox, but of failure to ensure protection before exposure to infection.”

DANGER OF UNRECOGNISED CASES.—INFECTION REMAINING IN HOUSE.

The much-modified and missed case was productive of serious results, and the following illustration of the difficulties which were experienced illustrates how infection may remain in a house after the inmates have left:—

“On 20th current (February, 1904) a child was removed to hospital from the dispensary of one of the general infirmaries, whither she had been taken for advice regarding an eruption which was there recognised as smallpox. On enquiry being made at the child’s home, it was found that her father had recently developed symptoms of smallpox, and that an elder sister had sickened on 1st February. It was further ascertained that another family had occupied this house between November and 30th January, but now resided in Newhall Street. On examining this latter family, the mother was found to be recovering from an attack, while the husband presented marks which concurred with his story that he had passed through an attack beginning about the New Year.”

DISEASE MISTAKEN FOR CHICKENPOX.

In the following instances modified smallpox in children had been mistaken for chickenpox:—

“F. H., residing at Reid Street, Bridgeton, was notified on 24th February to be suffering from smallpox, and a visit to the house elicited the information that two children had recovered from an illness thought to be chickenpox. On examining these children one was found to be recovering from smallpox, while the other was too far advanced toward recovery to make the diagnosis certain. The father and a girl aged six developed the rash of smallpox on the day following the above visit, and another girl sickened two days later.

“It was further observed from the Registrar’s returns that the death of an unvaccinated child, three months old, had been certified ‘chickenpox and exhaustion.’ On enquiry being made into the circumstances, it was found that the family had gone to reside at one of the coast towns, the name of which was unknown. On the following day, however (17th May, 1904), a letter was received from the County Medical Officer of Health, Ayrshire, stating that the mother had sickened of smallpox, the eruption appearing on the 15th instant. Subsequently a visitor at the house in Glasgow was notified as also suffering from smallpox, the illness dating from 21st instant, the visits having been made on the 1st and 8th May. The child sickened on 29th April, and its death occurred on 12th May. It had been unvaccinated owing to the delicate state of its health.”

PRESENT LEGISLATIVE POWERS DEFECTIVE IN DEALING WITH LODGING-HOUSE POPULATION WHEN INFECTIOUS DISEASE PRESENT.

In June, 1904, occasion was taken to refer to the attack-rate among the institutional population in the following terms:—

	Population.	Cases.	Attack-rate per 1,000.
(1) Institutions, ...	17,799	158	8·8
(2) Ward I., ...	50,859	171	3·3
„ III., ...	43,169	126	2·9
„ II., ...	38,960	65	1·6
„ IV., ...	33,776	55	1·6
(3) Wards V. to XXV. (including Shipping), ...	597,546	428	·7
CITY, ...	<u>782,110</u>	<u>1,003</u>	<u>1·2</u>

“The population here debited to institutions includes, in addition to common lodging-houses, those residing in hospitals, prisons, &c.; but the cases coming from institutions belong, with few exceptions, to the occupants of common lodging-houses, which contain less than one-half of the total institutional population.

"The reason for separating the population into these groups is that, while the attack-rate over the whole population has been 1·2 per 1,000, in Wards I. to IV. it rises to 3·3, and in institutions is no less than 8·8, while the balance of population in Wards V. to XXV. has only had an attack-rate of ·7 per 1,000. These differences are worthy of consideration.

"The lodging-houses are under regulation as to cubic space, sanitary conveniences, cleansing, and certain other details of structure and management; but with regard to infectious disease their populations are less under control than the occupants of a dwelling-house. Persuasion, even when supplemented by a bribe, breaks down ultimately; and special effort to ensure the complete protection of a particular lodging-house tends to drive the more indifferent of its occupants to others which at the moment may be free from infection, and, consequently, free from similar effort. The nomadic tendencies of a large portion of this section of the population places the administration at great disadvantage in dealing with infectious disease among them. Until we have a scheme of national re-vaccination, the need to restrain movement in certain cases is as necessary as the need to re-vaccinate, and the option to extend both beyond the immediate area of known infection is desirable."

EFFORTS TO OBTAIN RE-VACCINATION.

(a) *At Private Residences.*—There is no stimulus to an active participation in the protective value of vaccination equal to the occurrence of cases of smallpox among neighbours, and in consequence the efforts to obtain re-vaccination were most successful in those districts where the cases were most numerous. By house-to-house visitation, mostly in the evening, the inspectors re-vaccinated 6,222 persons during the prevalence of the disease.

(b) *In "Models."*—When the outbreak commenced the offer of re-vaccination among the inmates at first took the form of a free night's lodging on the night on which the operation was performed, with the addition of six nights when the result proved to be successful. This was confined to "Models" where cases were then occurring, *i.e.*, Centre Street, Buchan Street, and ultimately Garscube Home.

Difficulty, however, soon became apparent in the endeavour to verify results, a large proportion failing to report themselves for subsequent examination when the result in a successful vaccination would have become apparent. In one "Model," for example, where cases were occurring, 86 were re-vaccinated under the conditions already mentioned, with the result that 30 were granted the additional six nights because their vaccination was successful, 8 were unsuccessful, and 48 failed to appear. *Query*—Was this number composed largely of those who knew themselves sufficiently protected, but accepted re-vaccination solely because of the one free night which this ensured? To get some light thereon, another observation was made under altered conditions, *i.e.*, no free night was granted until the result should prove successful, and here of 25 who offered themselves 10 ultimately proved successful, and were granted seven nights' lodging, 1 was unsuccessful, and 14 failed to appear. The next step was to withdraw all inducement, and depend on the stimulus of recently occurring cases in the particular "Model." Of 66 who presented themselves under these conditions, 21 were found to have been successful, but 45 failed to appear. Under none of these varied conditions could we verify the result in even one-half of the cases, and the practice was ultimately abandoned in favour of one which had the effect of closing the "Models" against newcomers, except such as were obviously well protected or would accept re-vaccination as a condition of admission. To this end the following incident contributed:—

Towards the end of November a considerable number of the men employed at the Talla Water-works, where cases were still occurring, left, and distributed themselves pretty well over the country, seeking, as a rule, lodging-houses in the towns. In consequence of this, all lodging-house keepers were advised to

be on the outlook for any such seeking admission, but few newcomers were recognised. To meet this difficulty, all the Corporation lodging-houses were placed under the supervision of an inspector, and newcomers among the inmates had to accept re-vaccination unless already sufficiently protected, or look for accommodation elsewhere. In some cases the private lodging-house keepers accepted the same precaution, and in most the utmost desire was evidenced to adopt every suggestion calculated to keep the uninfected "Models" free from invasion.

In all 3,136 re-vaccinations were done in the "Models," and the sum paid for free lodgings amounted to £31 6s. 11d. (See statement as to vaccination and cost which follows.)

In one female lodging-house, in Miller's Place, it was necessary to remove the inmates to the reception-house on the occurrence of the cases at a time when the house was found to be occupied by 30 in excess of the number for which it was licensed.

VACCINATION.

The following statement shows the number of vaccinations and re-vaccinations performed by the officers of the department, and otherwise at the cost of the Corporation, during the year 1904:—

	Primary.	Re-vaccinations.
At Office and Hospitals, ...	428	244
At Residence, by Staff, ...	2	4,220
In Prisons, ...	—	1,018
In Lodging-houses, &c., ...	7	1,601
By Medical Practitioners, in terms of circular letter dated 4th January, 1904, ...	—	4,056
	<u>437</u>	<u>11,139</u>

Cost.

1. Fees paid to Medical Practitioners, ...	£313	7	0
2. Overtime to Inspectors for work in Models and Tenements in evening, ...	352	2	0
3. Vaccinations at Prisons, ...	50	8	0
4. Paid to Lodging-house Keepers for Beds, ...	31	6	11
5. Cost of Lymph, ...	203	1	10
	<u>£951</u>	<u>5</u>	<u>9</u>

In the accompanying diagram, No. 2, the effect of infantile vaccination in several epidemic periods is shown by curves representing the altered age incidence of fatal cases at several age periods in all the outbreaks since 1855. Bearing in mind that compulsory vaccination only becomes operative at the end of the first six months of infancy, it will be observed that the proportion of fatal cases between six months and four years dwindles almost to vanishing point; while, on the contrary, the proportion occurring at ages 25-44 have contributed, in recent years, a much larger proportion of the deaths than in former years.

GLASGOW, 1903.—SMALL-POX CASES REPORTED IN THE SEVERAL FORTNIGHTS.
INSTITUTIONAL CASES IN WARDS SHOWN IN OUTLINE

[illegible]

TABLE X.

GLASGOW.—DEATHS from SMALLPOX, with DEATH-RATE *per Million*
of the POPULATION from 1855 to 1904.

Year.	Population.*	Deaths.	Death-rate per Million.
1855-59	1,848,560	1,043	563
1860-64	2,017,349	1,154	572
1865-69	2,197,535	167	75
1870-74	2,447,975	800	327
1874-79	2,710,741	25	9
1880-84	2,569,615	22	9
1885-89	2,647,902	8	3
1890	561,561	...	...
1891	567,272	...	...
1892	669,059	6	9
1893	677,883	26	38
1894	686,820	5	7
1895	695,876	23	33
1896	705,052	...	...
1897	714,919	6	8
1898	724,349	...	...
1899	742,194	1	1
1900	753,494	42	56
1901	764,467	200	262
1902	775,601	43	55
1903	786,897	26	33
1904	798,357	66	83

* Registrar-General's populations.

TABLE XI.
GLASGOW, 1903-1904.—SMALLPOX.—CASES REPORTED IN THE SEVERAL FORTNIGHTS.

Fortnight ending	MUNICIPAL WARDS.																									Institutions.	Harbour.	Whole City.	No. in Hospital each Fort-night.
	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	XII.	XIII.	XIV.	XV.	XVI.	XVII.	XVIII.	XIX.	XX.	XXI.	XXII.	XXIII.	XXIV.	XXV.				
1903.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
October 3,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
" 17,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
" 31,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
November 14,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
" 28,	6	3	6	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
December 12,	7	7	7	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
" 26,	23	7	18	15	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
1904.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
January 9,	22	9	6	4	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
" 23,	37	10	16	2	1	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
February 6,	5	10	18	1	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
" 20,	3	4	14	2	2	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
March 5,	8	...	10	2	...	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
" 19,	11	...	3	1	1	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
" 2,	4	6	4	7	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
April 16,	13	1	2	14	1	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
" 30,	10	3	5	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
" 14,	8	1	4	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
" 28,	14	2	9	1	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
June 11,	4	...	2	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
" 25,	15	1	10	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
July 9,	13	...	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
" 23,	2	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
August 6,	...	...	7	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
" 20,	4	1	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
September 3,	1	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
" 17,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
October 1,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			
TOTAL.	210	67	161	57	15	36	6	32	35	1	3	26	15	32	3	33	26	74	49	50	34	7	2	2	3	1,163			
																										...			

TABLE I.

GLASGOW, 1903.—SMALL-POX CASES REPORTED IN THE SEVERAL FORTNIGHTS.

INSTITUTIONAL CASES IN WARDS SHOWN IN OUTLINE.

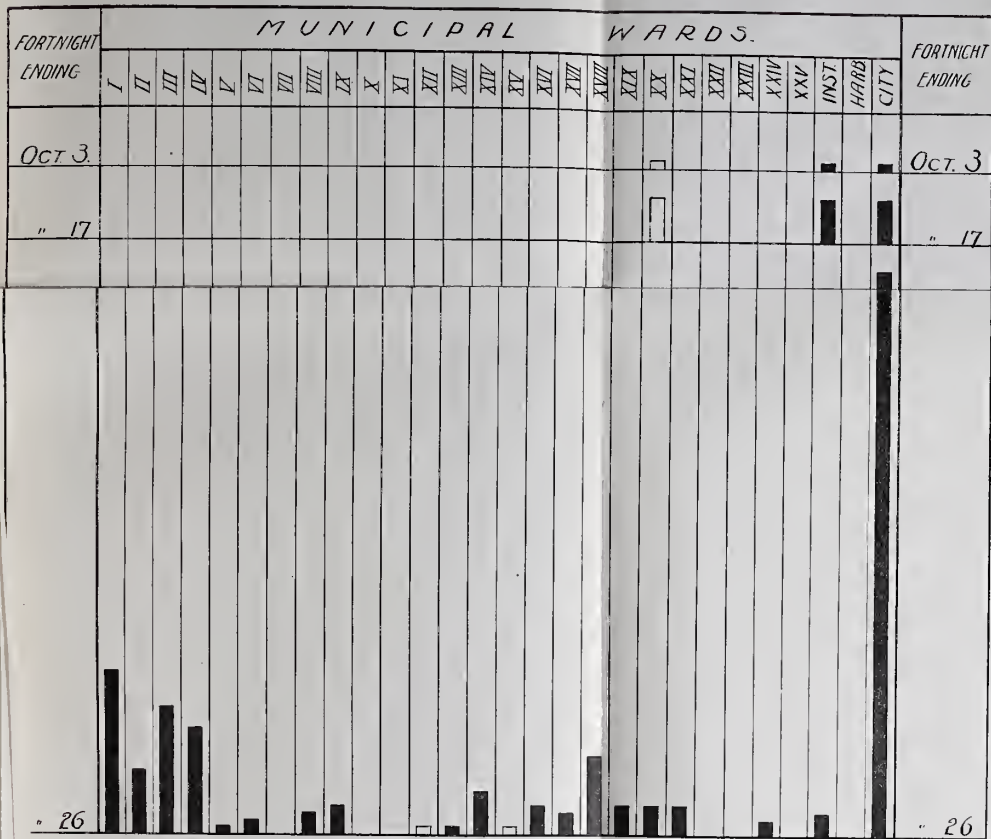


TABLE XII.

GLASGOW, 1903-1904.—SMALLPOX.—RETURN of CASES and DEATHS in each MUNICIPAL WARD.

MUNICIPAL WARDS.	MEAN POPULA- TION.*	CASES.		DEATHS.	
		Number.	Rate per Million.	Number.	Rate per Million.
1. Dalmarnock, ...	50,757	208	4,098	20	394
2. Calton, ...	38,463	66	1,716	4	104
3. Mile-end, ...	43,174	160	3,706	11	255
4. Whitevale, ...	33,432	57	1,705	5	150
5. Dennistoun, ...	33,378	15	449	...	...
6. Springburn, ...	41,823	37	885	3	72
7. Cowlairs, ...	25,059	7	279	2	80
8. Townhead, ...	39,671	33	832	5	126
9. Blackfriars, ...	22,792	25	1,097	2	88
10. Exchange, ...	2,235	2	895	...	...
11. Blythswood, ...	3,540	3	847	...	...
12. Broomielaw, ...	8,214	25	3,044	2	243
13. Anderston, ...	29,297	16	546	...	...
14. Sandyford, ...	26,216	31	1,182	4	153
15. Park, ...	25,087	3	120	...	...
16. Cowcaddens, ...	39,075	32	819	1	26
17. Woodside, ...	45,356	26	573	2	44
18. Hutchesontown, ...	41,719	73	1,750	7	168
19. Gorbals, ...	36,550	53	1,450	4	109
20. Kingston, ...	34,859	53	1,520	3	86
21. Govanhill, ...	33,835	34	1,005	2	59
22. Langside, ...	31,142	7	225	...	...
23. Pollokshields, ...	17,358	2	115	...	...
24. Kelvinside, ...	19,371	2	103	...	...
25. Maryhill, ...	36,973	3	81	...	...
Institutions, ...	18,509	180	9,725	14	756
Harbour, ...	1,241	1	806	...	...
No residence, ...	...	4	...	...	...
	779,126	1,158	1,486	91	117

* Medical Officer of Health's estimates, based on the Return of Inhabited Houses.

TABLE XIII.

SMALLPOX, 1903-1904.—TABLE of CASES and DEATHS at several AGE-PERIODS, with CASE-MORTALITY and CONDITION as to VACCINATION.

AGE.	VACCINATED.					UNVACCINATED.					VACCINATION DOUBTFUL.				
	Admitted.		Died.		Mortality per cent.	Admitted.		Died.		Mortality per cent.	Admitted.		Died.		Mortality per cent.
	Male.	Female.	Male.	Female.	Both Sexes.	Male.	Female.	Male.	Female.	Both Sexes.	Male.	Female.	Male.	Female.	Both Sexes.
Under 6 months,	...	...	...	...	...	18	12	9	8	56·7	...	...	...	...	...
" 5 years,	2	1	...	...	...	11	14	2	2	16·0	2	4	...	1	16·7
5—10 "	5	7	...	...	...	7	7	2	...	14·3	9	6	...	1	6·7
10—15 "	9	18	...	...	...	...	1	...	...	...	2	3	1	1	40·0
15—20 "	35	22	...	...	...	2	...	...	...	...	4	2	...	...	...
20—25 "	79	35	1	...	0·9	4	2	...	1	16·7	5	1	1	...	16·7
25—35 "	202	137	4	7	3·2	...	1	...	...	...	4	3	...	...	...
35—45 "	208	92	15	5	6·7	3	2	1	...	20·0	9	1	5	1	60·0
45—55 "	79	30	9	4	11·9	3	1	1	...	25·0	7	1	3	...	37·5
55—65 "	21	9	5	...	16·7	...	...	...	...	...	3	...	...	...	...
65 and upwards,	4	8	1	...	8·3	1	...	...	...	...	...	...	...	...	...
	644	359	35	16	5·1	49	40	15	11	29·2	45	21	10	4	21·2
Corresponding Mortality, 1900-1902,	...	...	...	...	9·1	...	...	...	...	51·6	...	...	...	...	54·3

TABLE XIV

GLASGOW, 1903-1904.—SMALLPOX.—NUMBER of CASES and DEATHS, with ATTACK and DEATH RATES at certain AGE-PERIODS; also, PROPORTION of POPULATION living thereat.

Age.	Proportion of Population.	Proportion of Cases.	Number of Cases.	Attack-rate per Million.	Deaths.	Death-rate per Million.
0 to 5 years,	11·9	5·53	64	690	22	237
5 „ 10 „	10·5	3·54	41	501	3	37
10 „ 15 „	9·8	2·85	33	432	2	26
15 „ 20 „	10·1	5·61	65	826	...	...
20 „ 25 „	10·9	10·88	126	1,484	3	35
25 „ 35 „	17·5	29·97	347	2,545	11	81
35 „ 45 „	12·4	27·20	315	3,260	27	279
45 „ 55 „	8·6	10·45	121	1,806	17	254
55 „ 65 „	5·2	2·85	33	815	5	123
65 and upwards,	3·1	1·12	13	538	1	41
	100·0	100·00	1,158	1,486	91	117

TABLE XV.

GLASGOW, 1903-1904.—SMALLPOX.—TABLE showing RESULTS of INQUIRY at REGISTRARS in UNVACCINATED or DOUBTFULLY VACCINATED CASES.

AGE.	UNVACCINATED.							
	Total.	Children under 6 Months.	Born before passing of Act.	Unable to trace Place of Birth.	Posted as Defaulter.	Certified successfully Vaccinated.	Certified as Unsusceptible.	Postponed by Certificate.
Under 6 months,	30	30	...	...	...	...	...	...
„ 5 years,	25	...	...	2	11	6	2	4
5—10 „	14	...	...	2	8	2	2	...
10—15 „	1	...	...	...	1	...	...	...
15—20 „	2	...	...	...	1	1	...	...
20—25 „	6	...	...	2	3	...	1	...
25—35 „	1	...	...	...	...	1	...	...
35—45 „	5	...	2	2	1	...	...	...
45—55 „	4	...	2	2	...	...	...	...
55—65 „	...	...	...	...	...	...	...	...
65 and upwards,	1	...	...	1	...	...	...	...
	89	30	4	11	25	10	5	4
	DOUBTFULLY VACCINATED.							
Under 6 months,	...	...	...	...	...	1	...	...
„ 5 years,	6	...	...	1	2	2	...	...
5—10 „	15	...	...	2	3	10	...	...
10—15 „	5	...	...	1	1	3	...	...
15—20 „	6	...	...	3	1	2	...	...
20—25 „	6	...	...	3	2	1	...	...
25—35 „	7	...	...	6	...	1	...	...
35—45 „	10	...	3	6	1	...	...	...
45—55 „	8	...	3	5	...	...	...	...
55—65 „	3	...	1	2	...	...	...	...
65 and upwards,	...	...	...	...	...	...	...	...
	66	...	7	29	10	20	...	...
GROSS TOTAL,	155	30	11	40	35	20	5	4

TABLE XVI.

GLASGOW, 1903-1904.—SMALLPOX.—RESULT of including among the VACCINATED those UNVACCINATED and DOUBTFULLY VACCINATED Persons who had been certified SUCCESSFULLY VACCINATED.

AGE.	VACCINATED.		
	Cases.	Deaths.	Case-Mortality per cent.
Under 6 months.	1	1	...
„ 5 years, ...	11	2	18·2
5—10 „	24	...	...
10—15 „	30	2	6·7
15—20 „	60	...	...
20—25 „	115	2	1·7
25—35 „	341	11	3·2
35—45 „	300	20	6·7
45—55 „	109	13	11·9
55—65 „	30	5	16·7
65 and upwards, ...	12	1	8·3
	1,033	57	5·5

TABLE XVII.

SMALLPOX, 1903-1904.—TABLE of CASES and DEATHS at several AGE-PERIODS, with CASE-MORTALITY per cent., irrespective of Vaccination.

TOTAL CASES.

AGE.	CASES.		DEATHS.		MORTALITY PER CENT.
	Male.	Female.	Male.	Female.	Both Sexes.
Under 6 months, ...	18	12	9	8	56·7
„ 5 years, ...	15	19	2	3	14·7
5 — 10 „	21	20	2	1	7·3
10 — 15 „	11	22	1	1	6·1
15 — 20 „	41	24	...	...	...
20 — 25 „	88	38	2	1	2·4
25 — 35 „	206	141	4	7	3·2
35 — 45 „	220	95	21	6	8·6
45 — 55 „	89	32	13	4	14·0
55 — 65 „	24	9	5	...	15·2
65 and upwards, ...	5	8	1	...	7·7
	738	420	60	31	7·9
Corresponding Mortality, 1900-1902, ...	...	...	...	...	13·1

PRIMARY VACCINATION.

Table XVIII. has been compiled from the figures contained in the Registrar-General's supplement for 1904, and gives particulars as to the vaccination of all children born in Glasgow during 1903. For comparison the figures for 1901 and 1902 are introduced.

TABLE XVIII.

GLASGOW.—PRIMARY VACCINATION for 1903—COMPILED from REGISTRAR-GENERAL'S SUPPLEMENT to MONTHLY and QUARTERLY RETURNS for 1904.

Registration Districts.	Successfully Vaccinated.		Vaccination Postponed.		Insusceptible of Vaccination.		Died before Vaccination.		Removed from the District, or otherwise Unaccounted for.		No. of Children Born.
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	
1. Maryhill, ...	1,582	86·2	18	1·0	14	0·8	161	8·7	61	3·3	1,836
2. Shettleston, ...	...	...	...	...	...	...	...	...	...	...	...
3. Bridgeton, ...	1,855	85·5	12	0·6	20	0·9	217	10·0	66	3·0	2,170
4. Camlachie, ...	1,758	86·0	13	0·6	13	0·6	198	9·7	62	3·1	2,044
5. Dennistoun, ...	2,653	86·0	32	1·0	20	0·6	292	9·5	89	2·9	3,086
6. Calton, ...	911	81·2	6	0·5	4	0·4	159	14·2	42	3·7	1,122
7. Blackfriars, ...	965	72·2	6	0·4	5	0·4	260	19·5	100	7·5	1,336
8. St. Rollox, ...	1,747	85·6	19	0·9	5	0·2	222	10·9	49	2·4	2,042
9. Blythswood, ...	422	82·7	2	0·4	2	0·4	60	11·8	24	4·7	510
10. Milton, ...	1,350	82·5	8	0·5	11	0·7	219	13·4	47	2·9	1,635
11. Kelvin, ...	1,502	88·7	10	0·6	15	0·9	136	8·0	30	1·8	1,693
12. Anderston, ...	1,236	86·8	9	0·6	9	0·6	149	10·5	22	1·5	1,425
13. Hutchesontown, ...	2,346	84·4	22	0·8	13	0·5	271	9·7	127	4·6	2,779
14. Gorbals, ...	1,153	83·1	13	0·9	8	0·6	161	11·6	53	3·8	1,388
15. Tradeston, ...	671	84·8	4	0·6	7	0·9	85	10·7	24	3·0	791
16. Kinning Park, ...	370	83·7	2	0·5	6	1·3	52	11·8	12	2·7	442
17. Plantation, ...	5	83·3	...	...	...	...	1	16·7	...	...	6
18. Govan, ...	29	72·5	1	2·5	1	2·5	8	20·0	1	2·5	40
19. Partick, ...	186	90·7	...	...	1	0·5	16	7·8	2	1·0	205
20. Rutherglen, ...	1	100·0	...	...	...	...	...	...	...	...	1
21. Cathcart, ...	466	89·8	8	1·5	5	1·0	34	6·5	6	1·2	519
22. Eastwood, ...	62	86·1	2	2·8	1	1·4	6	8·3	1	1·4	72
CITY, ...	21,270	84·6	187	0·7	160	0·6	2,707	10·8	818	3·3	25,142
1901, ...	...	83·0	...	0·8	...	1·7	...	10·9	...	3·6	24,120
1902, ...	...	84·2	...	0·8	...	0·9	...	10·6	...	3·5	24,720

DIPHTHERIA.

The cases of diphtheria registered during the year numbered 647, compared with 724 in 1903. The number of deaths registered was 91, compared with 103 in 1903. These figures for 1904 represent an attack-rate of 824 per million living, and a death-rate of 116. Compared with 1903 the attack-rate was less, as were also the mortality and fatality rates (*i.e.*, the rate of fatal attacks per 1,000 cases). The case-mortality fell from 14·3 per cent. in the earlier to 14·1 in the later year.

For several periods the death-rate for diphtheria in Glasgow has been :—

1881-90, ...	·280 per 1,000 living.
1891-1900, ...	·231 „
1900, ...	·165 „
1901, ...	·151 „
1902, ...	·135 „
1903, ...	·132 „
1904, ...	·116 „

Compared with several other towns during the ten years 1894-1903 and 1904, the death-rate per 100,000 is as follows :—

	1894-1903.			1904.		
Glasgow, ...	17	...	...	12	...	...
Edinburgh, ...	20	...	...	14	...	...
Dundee, ...	16	...	...	13	...	...
Aberdeen, ...	16	...	...	7	...	...
Paisley, ...	14	...	...	11	...	...
Greenock, ...	19	...	...	22	...	...
London, ...	42	...	...	16	...	...
Liverpool, ...	24	...	...	27	...	...
Manchester, ...	19	...	...	17	...	...
Birmingham, ...	27	...	...	24	...	...

In the following Table (XIX.) the attack-rate and morbidity-rate, together with the percentage of cases treated in hospital, are shown.

TABLE XIX.
DIPHTHERIA and MEMBRANOUS CROUP.

Year.	CASES.			DEATHS.			Case-mortality per cent.
	Number.	Rate per Million.	Per Cent. treated in Hospital.	Number.	Rate per Million.	Per Cent. occurring in Hospital.	
1886-90	...	...	...	...	466	...	...
1891	465	822	16·1	131	232	23·7	28·2
1892	575	861	14·1	195	292	15·9	33·9
1893	828	1,228	19·0	246	365	25·6	29·7
1894	967	1,414	26·1	290	424	30·0	30·0
1895	654	944	28·4	137	198	19·0	21·0
1896	601	854	31·6	116	165	30·2	19·3
1897	462	647	32·9	127	178	30·7	27·5
1898	433	592	59·6	113	154	47·8	26·0
1899	465	622	52·3	109	146	31·2	23·5
1900	540	715	59·4	125	165	44·0	23·1
1901	563	739	57·2	115	151	44·4	20·4
1902	617	794	60·1	105	135	61·9	17·0
1903	724	926	71·1	103	132	68·9	14·3
1904	647	824	69·9	91	116	57·1	14·1

In Table XX. the cases and deaths occurring in each ward are shown, the case-rate for the City being 824 per million. The largest proportion of cases to population occurred in Cowlairst, Blythswood, Langside, Kelvinside, and Maryhill Wards, but the mortality was greatest in Cowcaddens, Anderston, Maryhill, Langside, and Calton.

TABLE XX.

GLASGOW.—DIPHTHERIA and MEMBRANOUS CROUP.—CASES and CASE-RATES and DEATHS and DEATH-RATES in each MUNICIPAL WARD.

MUNICIPAL WARDS.	1903.				1904.			
	Cases.	Case-rate per Million.	Deaths.	Death-rate per Million.	Cases.	Case-rate per Million.	Deaths.	Death-rate per Million.
1. Dalmarnock, ...	34	661	8	157	40	790	6	118
2. Calton, ...	20	487	5	128	29	764	6	158
3. Mile-end, ...	32	734	6	139	28	648	3	69
4. Whitevale, ...	27	773	5	148	12	363	2	60
5. Dennistoun, ...	52	1,524	5	154	22	642	3	88
6. Springburn, ...	28	651	4	97	23	544	6	142
7. Cowlairst, ...	24	806	7	235	31	1,022	4	132
8. Townhead, ...	36	874	3	75	27	686	3	76
9. Blackfriars, ...	15	630	2	87	17	756	...	...
10. Exchange, ...	2	753	...	...	...	...	...	...
11. Blythswood, ...	3	764	...	...	4	1,148	...	...
12. Broomielaw, ...	2	211	1	120	2	247	1	124
13. Anderston, ...	29	946	3	102	29	995	7	240
14. Sandyford, ...	24	903	3	113	20	771	4	154
15. Park, ...	34	1,322	2	80	16	634	...	...
16. Cowcaddens, ...	35	852	9	225	35	916	9	236
17. Woodside, ...	52	1,139	6	131	44	976	7	155
18. Hutchesontown, ...	42	1,000	5	119	23	555	5	121
19. Gorbals, ...	34	911	5	137	26	711	4	109
20. Kingston, ...	20	565	4	115	17	486	4	114
21. Govanhill, ...	40	1,184	5	148	32	944	2	59
22. Langside, ...	34	1,131	4	135	66	2,021	6	184
23. Pollokshields, ...	32	1,884	...	...	12	677	1	56
24. Kelvinside, ...	22	1,123	2	106	30	1,508	1	50
25. Maryhill, ...	28	734	6	165	48	1,278	7	186
— Institutions and Harbour, ...	23	...	3	...	14	...	...	...
CITY, ...	724	926	103	132	647	824	91	116

Age and Sex Distribution.—The following Table shows the age and sex distribution of the cases and the mortality at certain age-periods. Every year of early childhood which can be protected from attack adds appreciably to the chances of recovery should the disease ultimately be contracted, although in the present instance the descent is interrupted in males at the age of 3 years.

GLASGOW, 1904.—AGE and SEX DISTRIBUTION of DIPHTHERIA, DEATHS, and CASE-MORTALITY per cent.

AGE.	Number of Cases.		Number of Deaths.		Case-mortality per cent.	
	Male.	Female.	Male.	Female.	Male.	Female.
0	14	14	6	5	42·9	35·7
1	45	37	14	11	31·1	29·7
2	49	38	7	10	14·3	26·3
3	31	46	7	4	22·6	8·7
4	25	27	4	2	16·0	7·4
5	63	82	6	8	9·5	9·8
10	20	25	1	3	5·0	12·0
15	13	17	...	1	...	5·9
20	9	27	1	...	11·1	...
25	9	33	...	...	...	...
35	5	11	...	...	...	...
45	...	2	...	...	...	...
55	2	1	...	...	...	...
65	...	2	...	1	...	...
All Ages,	285	362	46	45	16·1	12·4

School Influence.—A comparison was established last year between the cases occurring during the summer vacation and a corresponding number of weeks before and after, with the result that at ages 3-13 there was a slight diminution of cases occurring during the holiday period, an increase at ages under 3 and between 3 and 13 in the weeks immediately following the vacation, and a decrease in the number of cases occurring at ages above 13. In the present instance the decrease in the vacation period is shown for each age over 3, while in the weeks following the increase is again noted at each period, but chiefly at the school ages.

GLASGOW, 1904.—DIPHTHERIA and MEMBRANOUS CROUP.—CASES notified between 23rd May and 7th October, arranged to show the INFLUENCE of SCHOOL HOLIDAYS on CASE-INCIDENCE (after "London" Table).

PERIODS.	Cases Notified.						Increase or Decrease.						TOTAL.
	Ages, 0—3.		Ages, 3—13.		Ages, 13 and up.		Ages, 0—3.		Ages, 3—13.		Ages, 13 and up.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
1st. { May 23 to July 7,	8	8	6	13	6	11	...	...	...	...	...	...	52
2nd. { July 7 to Aug. 22,	12	10	9	9	4	10	+4	+2	+3	—4	—2	—1	54
							+6		—1		—3		
3rd. { Aug. 22 to Oct. 7,	18	16	12	24	4	11	+6	+6	+3	+15	...	+1	85
							+12		+18		+1		
	38	34	27	46	14	32							
	72		73		46								191

Seasonal Distribution.—By referring to Table XXI. it will be seen that the attack-rate of the disease falls to its minimum during the month of July, which is the school holiday month.

The seasonal prevalence of the disease is shown by stating the numbers registered monthly and their rate per 100,000 of the population calculated as an annual average.

TABLE XXI.

GLASGOW, 1904.—DIPHTHERIA and MEMBRANOUS CROUP.—CASES REGISTERED and ANNUAL CASE-RATE per 100,000 LIVING for each MONTH for the ELEVEN YEARS, 1890-1900, and for 1901, 1902, 1903, and 1904.

MONTH.	CASES REGISTERED.					ANNUAL CASE-RATE PER 100,000.				
	1890-1900.	1901.	1902.	1903.	1904.	1890-1900.	1901.	1902.	1903.	1904.
January, ...	652	69	40	96	48	103	107	61	147	73
February, ...	611	35	45	41	63	108	60	75	62	96
March, ...	586	45	53	66	53	93	70	80	102	81
April, ...	461	41	44	39	57	75	65	69	59	87
May, ...	444	43	42	47	62	70	66	64	72	95
June, ...	377	38	34	30	32	62	61	53	46	49
July, ...	300	33	50	38	31	47	51	76	59	47
August, ...	478	36	38	53	47	76	56	58	81	72
September, ...	608	49	50	51	56	100	78	78	78	86
October, ...	711	45	76	96	65	113	70	115	146	99
November, ...	698	81	68	106	76	114	129	106	163	116
December, ...	649	48	77	61	57	103	74	117	94	87
Year,	6,575	563	617	724	647	89	74	79	93	82

TABLE XXII.

GLASGOW.—DEATHS and DEATH-RATES *per Million* from DIPHTHERIA and CROUP from 1895 to 1904.*

Year.	DEATHS.			DEATH-RATE PER MILLION.		
	Diphtheria.	Croup.	Diphtheria and Croup.	Diphtheria.	Croup.	Diphtheria and Croup.
1895	112	73	185	161	105	266
1896	83	54	137	118	76	194
1897	97	48	145	136	67	203
1898	103	29	132	142	40	182
1899	106	17	123	145	23	168
1900	130	19	149	175	25	200
1901	110	13	123	144	17	161
1902	106	21	127	137	27	164
1903	105	13	118	133	17	150
1904	95	9	104	119	11	130

* Registrar-General's Annual Reports.

A new Table has been introduced with the view of contrasting the case-mortality in cases treated at home and in hospital for the years 1891 to 1904 inclusive. A considerable reduction is to be observed in both at the later years of the period; but while this begins in hospital in 1895, the reduction in those treated at home does not become apparent until 1902. Moreover, the reduction is greatest amongst those treated in hospital, a circumstance which suggests that the more systematic administration of anti-toxine, which is therein adopted, exercises a considerable influence in averting a fatal result.

GLASGOW.—DIPHTHERIA and MEMBRANOUS CROUP.

YEAR.	TREATED AT HOME.			TREATED IN HOSPITAL.		
	Cases.	Deaths.	Case-mortality per cent.	Cases.	Deaths.	Case-mortality per cent.
1891	390	100	25·6	75	31	41·3
1892	494	183	37·0	81	12	14·8
1893	671	183	27·3	157	63	40·1
1894	715	203	28·4	252	87	34·5
1895	468	111	23·7	186	26	13·9
1896	411	81	19·7	190	35	18·4
1897	310	88	28·4	152	39	25·6
1898	175	59	33·7	258	54	20·9
1899	222	75	33·8	243	34	14·0
1900	219	70	32·0	321	55	17·1
1901	241	64	26·5	322	51	15·8
1902	246	40	16·3	371	65	17·5
1903	209	32	15·3	515	71	13·8
1904	195	38	19·5	452	53	11·7

ENTERIC FEVER.

628 cases of enteric fever were registered during 1904, of which 575, or 91·6 per cent., were treated in hospital. The number of deaths from this disease in 1904 was 84, representing a death-rate of ·107 per 1,000 living. The case-rate for the year was 800 per million living, compared with 1,207 in 1903. The case-mortality was lower than in any year since 1891. The average annual death-rate for several periods has been as follows:—

1881-90,	...	...	...	...	·230 per 1,000.
1891-1900,	...	...	...	...	·215 ,,
1900,	...	...	...	...	·209 ,,
1901,	...	...	...	...	·275 ,,
1902,	...	...	...	...	·142 ,,
1903,	...	...	...	...	·182 ,,
1904,	...	...	...	...	·107 ,,

The following Table gives the attack-rate and death-rate per million and the case-mortality for each year since 1891:—

TABLE XXIII.
GLASGOW.—ENTERIC FEVER, 1891-1904.

Year.	CASES.			DEATHS.			Case-mortality per cent.
	Number.	Rate per Million.	Per cent. treated in Hospital.	Number.	Rate per Million.	Per cent. occurring in Hospital.	
1891	784	1,386	59·8	123	218	69·9	15·7
1892	590	884	58·3	101	151	67·3	17·1
1893	703	1,043	60·9	120	178	68·3	17·1
1894	810	1,184	72·2	151	221	76·2	18·6
1895	797	1,150	74·5	122	176	73·0	15·3
1896	691	982	71·1	145	206	72·4	21·0
1897	905	1,265	74·6	174	243	78·8	19·2
1898	1,212	1,657	86·6	228	312	86·0	18·8
1899	1,080	1,445	89·4	178	238	84·3	18·4
1900	1,013	1,340	85·1	158	209	85·4	15·6
1901	1,257	1,650	85·1	210	275	80·1	16·7
1902	698	899	90·7	110	142	88·2	15·8
1903	944	1,207	92·2	142	182	91·5	15·1
1904	628	800	91·6	84	107	89·3	13·4

For comparison with other towns the following particulars are given:—

DEATH-RATE PER 100,000 FROM ENTERIC FEVER IN CERTAIN LARGE TOWNS OF
SCOTLAND AND ENGLAND FOR SEVERAL PERIODS.

	1894-1903.			1904.
Glasgow,	...	...	22	10
Edinburgh,	...	...	12	6
Dundee,	...	...	11	13
Aberdeen,	...	...	8	2
Leith,	...	...	9	6
Paisley,	...	...	29	14
Greenock.	...	...	20	42
London,	...	...	14	7
Liverpool,	...	...	30	15
Manchester,	...	...	18	12
Birmingham,	...	...	21	7

The distribution of the disease throughout the several wards of the City may be followed in Table XXIV., in which are stated the number of cases registered, and the case-rates, together with the deaths and death-rates recorded during 1903 and 1904. The mean attack-rate of the City was exceeded notably in the cases of Broomielaw, Cowcaddens, Woodside, Hutchesontown, and Maryhill, but the death-rates were greatest in Hutchesontown, Dennistoun, and Woodside.

TABLE XXIV.
GLASGOW.—ENTERIC FEVER.

MUNICIPAL WARDS.	1903.				1904.			
	Cases.	Case- rate per Million.	Deaths.	Death- rate per Million.	Cases.	Case- rate per Million.	Deaths.	Death- rate per Million.
1. Dalmarnock, ...	57	1,108	13	256	35	691	3	59
2. Calton, ...	56	1,363	11	282	37	975	3	79
3. Mile-end, ...	71	1,630	17	394	30	695	4	93
4. Whitevale, ...	52	1,490	10	296	28	846	4	121
5. Dennistoun, ...	28	821	5	154	24	701	7	204
6. Springburn, ...	62	1,441	5	121	22	520	5	118
7. Cowlairs, ...	28	940	4	134	19	626	2	66
8. Townhead, ...	52	1,262	7	175	21	534	3	76
9. Blackfriars, ...	39	1,637	6	260	16	711	3	133
10. Exchange, ...	2	753	1	448	...	...	...	...
11. Blythswood, ...	1	254	...	...	...	...	...	...
12. Broomielaw, ...	17	1,793	1	120	14	1,730	...	...
13. Anderston, ...	45	1,467	8	271	22	755	5	172
14. Sandyford, ...	12	451	2	75	10	385	2	77
15. Park, ...	7	272	2	80	12	476	2	79
16. Cowcaddens, ...	101	2,458	18	450	46	1,204	6	157
17. Woodside, ...	35	767	3	66	62	1,376	9	200
18. Hutchesontown, ...	52	1,239	10	238	65	1,568	10	241
19. Gorbals, ...	69	1,848	6	164	31	848	2	55
20. Kingston, ...	49	1,383	3	86	23	658	3	86
21. Govanhill, ...	19	562	3	89	10	295	1	30
22. Langside, ...	8	266	2	67	10	306	...	...
23. Pollokshields, ...	3	177	2	118	3	169	...	...
24. Kelvinside, ...	6	306	1	53	8	402	1	50
25. Maryhill, ...	26	682	1	27	40	1,065	6	160
— Institutions and Harbour, ...	47	...	1	...	40	...	3	...
CITY, ...	944	1,207	142	182	628	800	84	107

SHELL-FISH INFECTION.

In last year's Report reference was made to the occurrence of enteric fever in persons who were known to have partaken of shell-fish gathered at Lochgilphead, and towards the close of the present year an illustration occurred of attacks of enteric fever occurring among persons who were known to have partaken of mussels sold in shops. The following extract is from the fortnightly report presented to the Committee on Health on 28th December:—

“Warned by the experience of last year, special enquiry regarding the consumption of shell-fish has been made in each case of enteric fever notified.

“Until the present month, however, no evidence pointing to shell-fish has been obtained.

“During it, however, thirteen cases of enteric fever in the Southern District have been found, on examination, to be consumers of shell-fish (mussels) obtained from two shops in adjoining streets.

“The sources of the supply to these have been enquired into, and samples of the shell-fish taken for bacteriological examination.

“Meantime a warning has been issued to those concerned that no mussels are to be sold unless they have previously been thoroughly boiled.”

MILK INFECTION.

Amidst the general prevalence of enteric fever, association of a number of cases in the Northern District with a particular branch of a large dairy supply attracted attention. About the same time intimation was received from the County Medical Officer that at the farm previously supplying the branch there had been an illness for some time, which had only lately declared itself as enteric fever. The milk supply had been stopped on 26th November. Altogether 18 cases have occurred.

A new Table has been introduced, constructed on similar lines to that already referred to in diphtheria. It compares the case-mortality in cases treated at home and hospital, but presents no such contrast as is shown in the case of diphtheria. In seven of the years noted the case-mortality at home is below that of the hospital, which reflects in all probability the more serious nature of the attack in cases which are removed to hospital.

GLASGOW.—ENTERIC FEVER.

YEAR.	TREATED AT HOME.			TREATED IN HOSPITAL.		
	Cases.	Deaths.	Case-mortality per cent.	Cases.	Deaths.	Case-mortality per cent.
1891	315	37	11·8	469	86	18·3
1892	246	33	13·4	344	68	19·8
1893	275	38	13·8	428	82	19·2
1894	225	36	16·0	585	115	19·7
1895	203	33	16·3	594	89	15·0
1896	200	40	20·0	491	105	21·4
1897	230	37	16·1	675	137	20·3
1898	162	32	19·8	1,050	196	18·7
1899	114	28	24·6	966	150	15·5
1900	151	23	15·2	862	135	15·7
1901	187	42	22·5	1,070	168	15·7
1902	65	13	20·0	633	97	15·3
1903	73	12	16·2	871	130	14·9
1904	53	14	26·4	575	70	12·2

TYPHUS FEVER.

27 cases of typhus fever were registered in 1904, and 5 deaths occurred. All the cases were treated in hospital. The case-rate was 34 and the death-rate 6 per million living.

The death-rate for the several periods is as follows:—

1881-90,	...	...	...	...	...	040	per 1,000 living.
1891-1900,	...	...	...	...	...	016	„
1900,	...	...	...	...	...	023	„
1901,	...	...	...	...	...	013	„
1902,	...	...	...	...	...	012	„
1903,	...	...	...	...	...	008	„
1904,	...	...	...	...	...	006	„

Compared with other large towns, the death-rate in the ten years, 1894 to 1903, and in 1904, per 100,000 living, was as follows:—

						1894-1903.		1904.
Glasgow,	...	...	...	...	...	1.4	...	1.0
Edinburgh,	...	...	...	...	...	0.9	...	—
Dundee,	...	...	...	...	...	1.9	...	—
Aberdeen,	...	...	...	...	...	0.1	...	1.0
Paisley,	...	...	...	...	...	1.0	...	—
Greenock,	...	...	...	...	...	1.2	...	—

The following extracts from the Fortnightly Reports presented to the Committee on Health afford illustrations of the conditions under which the cases of typhus occurred:—

(Extract from Report of 24th February.)

The cases of typhus fever which now come under observation usually present themselves in small groups, when definite association is traceable; and occasional isolated attacks, having no discernible association with each other.

During the latter half of 1903 an illustration of grouping occurred in South Stirling Street, and isolated cases occurred later in Sharp's Lane, Coulter's Lane (Parkhead), and Rosemount Street, making in all fourteen cases during the last six months of the year. In January the disease recurred in Sharp's Lane, but the earlier cases were removed to hospital as enteric fever, where their true character was recognised. A certain number of contacts were then discovered, and removed to the reception-house, where two of them subsequently sickened. The recurrence of the disease suggests its unrecognised continuance in this neighbourhood, and a house-to-house visitation is being made. Since the beginning of the year 282 visits have been made in these neighbourhoods with a view to the discovery of overcrowding, and 22 cases were found. There was no history of past illness in the houses, however, in which it occurred.

(Extract from Report of 20th April.)

A case of typhus fever was removed from a house in the Eastern District. The patient was a labourer who had, up to the time of sickening, resided in a "Model," and, on the occurrence of his illness, had gone to stay with the relatives in whose house he was discovered. The house is of two apartments, is clean and well kept. No definite movements of the patient associating him with previous cases have been ascertained.

(Extract from Report of 29th June.)

On 18th June a girl, 14 years of age, residing in the Eastern District of the City, was removed to hospital certified as enteric fever. On admission the symptoms suggested typhus fever, but as the attack was practically over it was impossible to verify the diagnosis. The house is a fairly clean one of two apartments, occupied by $5\frac{1}{2}$ adults. The other members of the family were removed to reception-house for observation.

(Extract from Report of 25th July.)

On 4th current it was intimated from hospital that a male patient (40), admitted as enteric fever, was suffering from typhus. Two members of the same family had

been admitted early in June, and a third on the 28th—the first two being in the later stage of their illness, which had been treated as enteric. The mother had been admitted to City Poorhouse on 26th April, said to be suffering from influenza. She left the poorhouse on 14th May, and was ill for two weeks at home. Two inmates of a household on same landing have since developed the disease, as well as a frequent visitor to the first patient.

During the fortnight Inspector M'Diarmid, who had contracted typhus fever, was dismissed from hospital cured. Although strict inquiry has been made as to the probable source of his infection, nothing definite came to light tending to explain it.

(Extract from Report of 10th August.)

Two cases occurred during the fortnight, one being removed from the reception-house and the other patient from a house in the Eastern District. Both cases were directly traceable to those recorded in the previous fortnight.

(Extract from Report of 24th August.)

One case of typhus fever falls to be reported during the fortnight in the case of a nurse in Belvidere Hospital, and who had been nursing in the typhus wards until her sickness.

(Extract from Report of 7th September.)

Two cases of typhus were registered during this week, one case occurring in the Eastern and one in the Northern District. Both cases had been sent into hospital by their medical attendant as suffering from enteric fever, but were recognised to be suffering from typhus soon after admission.

(Extract from Report of 5th October.)

One case of typhus was registered during the fortnight. The patient was removed to the Eastern District Hospital on 26th September, to which he had been admitted on 24th September from Greendyke Street Model Lodging-house. He has resided continuously in this lodging-house for six months, but has slept in several different beds and dormitories, and is employed as a fishmonger's assistant in Partick.

(Extract from Report of 16th November.)

During the fortnight two cases of typhus fever were admitted to hospital. One, a boy of 9 years, who was a contact with the case removed during the preceding fortnight, and had been under observation in the reception-house. The other, a girl, 17 years of age, who was removed on 6th November from the Parish Eastern District Hospital, to which she had been admitted on 2nd current, having made application at the Council Chambers for medical relief. Her home address was given us as Kirkintilloch, but the patient was comatose on admission to Belvidere, and particulars of her movements have not been ascertained.

(Extract from Report of 28th December.)

On the 12th instant, at the request of the medical attendant, a visit was made to a house in St. John Street, Northern District, where four of the inmates (a mother and three children) were found to be suffering from well-marked typhus fever. These cases had sickened between the 3rd and 8th December. House-to-house visitation in the tenement led to the discovery of a fifth case, a relative of the above-mentioned family. This latter patient and her sister, the mother of the family, had been called to Campbeltown owing to the severe illness of their father, which was ascribed to "influenza." They stayed in Campbeltown from 12th to 17th November, and one of them sickened on 26th November, the remaining Glasgow cases being secondary in origin. Information was at once forwarded to the Medical Officer of Health of Campbeltown, and after a few days he reported that this had led to the discovery of six cases of typhus in the burgh and one in the immediate neighbourhood. They were all traceable to the one house, four being members of the household, two of them living in the same tenement, and the seventh a frequent visitor to the infected house.

The contacts in Glasgow were removed to the reception-house, and, so far, no more cases have occurred.

The ward distribution of the disease is shown in Table XXV :—

TABLE XXV.
GLASGOW.—TYPHUS FEVER.

MUNICIPAL WARDS.	1903.		1904.			
	Case-rate per Million.	Death-rate per Million.	Cases.	Case-rate per Million	Deaths.	Death-rate per Million.
1. Dalrnarnock, ...	117	...	...	...	...	...
2. Calton, ...	97	51	6	158	1	26
3. Mile-end, ...	46	...	2	46	1	23
4. Whitevale, ...	...	...	...	...	...	...
5. Dennistoun, ...	...	...	1	29	...	...
6. Springburn, ...	24	24	...	...	...	...
7. Cowlairst, ...	...	...	6	198	1	33
8. Townhead, ...	...	...	...	...	...	...
9. Blackfriars, ...	42	...	1	44	1	44
10. Exchange, ...	...	...	...	...	...	...
11. Blythswood, ...	...	...	...	...	...	...
12. Broomielaw, ...	...	...	...	...	...	...
13. Anderston, ...	65	...	4	137	...	...
14. Sandyford, ...	...	...	...	...	...	...
15. Park, ...	...	...	...	...	...	...
16. Cowcaddens, ...	...	...	...	...	...	...
17. Woodside, ...	...	...	...	...	...	...
18. Hutchesontown, ...	24	24	...	...	...	...
19. Gorbals, ...	215	27	2	55	1	27
20. Kingston, ...	141	...	...	...	...	...
21. Govanhill, ...	...	...	1	30	...	...
22. Langside, ...	33	34	...	...	...	...
23. Pollokshields, ...	...	...	...	...	...	...
24. Kelvinside, ...	...	...	...	...	...	...
25. Maryhill, ...	...	...	...	...	...	...
— Institutions and Harbour, ...	...	...	4	...	...	...
CITY, ...	41	8	27	34	5	6

SCARLET FEVER.

The number of cases of scarlet fever notified during 1904 was 1,573, of which 1,308, or 83·2 per cent., were treated in hospital. The deaths in 1904 numbered 69, representing a death-rate of 88 per million living. The case-rate for the City was 2,003 per million living. In both cases the rate is lower than any hitherto recorded.

For several periods the rate has been as follows:—

Average of 10 years, 1881-90, ...	·490 per 1,000 living.
„ 10 „ 1891-1900, ...	·295 „
1900, ...	·278 „
1901, ...	·172 „
1902, ...	·145 „
1903, ...	·105 „
1904, ...	·088 „

The death-rate per 100,000 from the disease in several large towns for several periods is as follows:—

						Death-rate per 100,000.	
						1894-1903.	1904.
Glasgow, ...	...	...	...	...	...	22	9
Edinburgh, ...	...	...	...	...	...	20	5
Dundee, ...	...	...	...	...	...	10	—
Aberdeen, ...	...	...	...	...	...	18	13
Paisley, ...	...	...	...	...	...	24	7
Greenock, ...	...	...	...	...	...	29	7
London, ...	...	...	...	...	...	14	8
Liverpool, ...	...	...	...	...	...	30	20
Manchester, ...	...	...	...	...	...	22	15
Birmingham, ...	...	...	...	...	...	23	12

The number of cases registered, with the proportion treated in hospital, the proportion of deaths occurring there, and the case-mortality for each year since 1891, are stated in the following Table:—

TABLE XXVI.
SCARLET FEVER.

Year.	CASES.			DEATHS.			Case-mortality. per Cent.
	Number.	Rate per Million.	Per Cent. Treated in Hospital.	Number.	Rate per Million.	Per Cent. Occurring in Hospital.	
1891	3,045	5,383	62·8	201	355	69·2	6·6
1892	4,844	7,257	62·7	301	451	63·5	6·2
1893	4,027	5,973	70·9	267	396	68·9	6·6
1894	3,930	5,701	73·7	210	307	70·0	5·3
1895	3,502	5,051	75·5	184	265	76·6	5·3
1896	2,728	3,879	78·9	143	203	82·5	5·2
1897	2,955	4,130	75·5	130	182	77·7	4·4
1898	3,620	4,947	82·3	190	260	76·3	5·2
1899	4,728	6,327	83·8	205	274	71·7	4·3
1900	4,162	5,508	85·7	210	278	77·6	5·0
1901	3,317	4,355	84·3	131	172	80·1	3·9
1902	2,509	3,229	85·3	113	145	77·9	4·5
1903	2,031	2,597	85·3	82	105	79·2	4·0
1904	1,573	2,003	83·2	69	88	85·5	4·4

In Table XXVII., showing the ward distribution, it will be seen that Langside again has the highest attack-rate, while the lowest rate this year is presented by Exchange Ward. In Exchange, Blythswood, Broomielaw, and Pollokshields no deaths from the disease occurred.

TABLE XXVII.
GLASGOW.—SCARLET FEVER.

MUNICIPAL WARDS.	1903.		1904.			
	Case-rate per Million.	Death-rate per Million.	Cases.	Case-rate per Million.	Deaths.	Death-rate per Million.
1. Dalmarnock, ...	1,496	59	52	1,027	3	59
2. Calton, ...	1,071	51	64	1,686	2	53
3. Mile-end, ...	1,721	116	65	1,505	6	139
4. Whitevale, ...	3,008	237	49	1,481	2	60
5. Dennistoun, ...	4,395	308	81	2,365	3	88
6. Springburn, ...	2,952	73	64	1,513	5	118
7. Cowlairs, ...	2,518	67	42	1,384	5	165
8. Townhead, ...	1,820	50	93	2,363	2	51
9. Blackfriars, ...	1,889	87	45	2,000	3	133
10. Exchange, ...	1,883	...	1	447	...	...
11. Blythswood, ...	1,782	...	3	861	...	...
12. Broomielaw, ...	1,899	120	9	1,112	...	...
13. Anderston, ...	2,967	136	95	3,260	5	172
14. Sandyford, ...	2,407	38	47	1,812	1	39
15. Park, ...	2,410	80	92	3,648	2	79
16. Cowcaddens, ...	1,752	...	44	1,152	2	52
17. Woodside, ...	3,045	131	95	2,108	6	133
18. Hutchesontown, ...	3,121	119	84	2,026	2	48
19. Gorbals, ...	2,893	192	47	1,285	6	164
20. Kingston, ...	1,666	86	50	1,430	4	114
21. Govanhill, ...	4,203	296	108	3,187	4	118
22. Langside, ...	4,589	67	135	4,133	2	61
23. Pollokshields, ...	2,414	118	50	2,820	...	...
24. Kelvinside, ...	2,348	...	48	2,413	2	101
25. Maryhill, ...	2,647	55	67	1,784	1	27
— Institutions and Harbour, ...	...	...	43	...	1	...
CITY, ...	2,597	105	1,573	2,003	69	88

MILK INFECTION.

(Extract from Report for 20th April.)

During the present fortnight an outbreak of scarlet fever occurred in connection with a milk supply in the Western District. The farm from which the milk was derived was visited, and everyone employed there examined, with negative results. No illness was discovered amongst the employees of the dairy staff. Up till the end of the fortnight 51 cases were registered, and of these 8 were secondary cases occurring in households already infected. The dairy premises have been thoroughly disinfected, and special instructions have been given regarding the supply of milk to infected households. Enquiry showed that the outbreak probably originated in the infection of milk vessels in a house in which scarlet fever was being treated. The numbers and dates of sickening are as follows:—

PRIMARY CASES.

Sickened	1st April,	...	= 4 (1 reported late).
"	2nd "	...	= 4
"	3rd "	...	= 7 (2 reported late).
"	4th "	...	= 4
"	5th "	...	= 4 (1 reported late).
"	6th "	...	= 1 (1 reported late).
"	7th "	...	= 0
"	8th "	...	= 3 (1 reported late).
"	9th "	...	= 3
"	10th "	...	= 2
"	11th "	...	= 3
"	12th "	...	= 4
"	13th "	...	= 3
"	14th "	...	= 2

The dairy was disinfected on the 12th current.

(Extract from Report for 28th December.)

The occurrence of four cases of scarlet fever in an institution in the North-Western part of the City led to an inquiry. In the course of this it became apparent that the irregular distribution of the disease could only be accounted for by an agent who had access to all parts of the building, and the outbreak apparently arose from the following circumstances:—A child, having developed symptoms suggestive of the disease, was isolated, but attended by an assistant matron, who continued to carry out her other duties. Eventually the case was recognised as scarlet fever, but by this time the infection had been disseminated.

Up till the end of the fortnight eleven cases have occurred.

A new Table has been introduced here, framed on lines similar to those referred to in the cases of diphtheria and enteric fever, and comparing the results of home treatment and hospital treatment for the years 1891 to 1904.

GLASGOW.—SCARLET FEVER.

YEAR.	TREATED AT HOME.			TREATED IN HOSPITAL.		
	Cases.	Deaths.	Case-mortality per cent.	Cases.	Deaths.	Case-mortality per cent.
1891	1,133	62	5.5	1,912	139	7.3
1892	1,807	110	6.1	3,037	191	6.3
1893	1,172	83	7.1	2,855	184	6.4
1894	1,034	63	6.1	2,896	147	5.1
1895	858	43	5.0	2,644	141	5.3
1896	576	25	4.3	2,152	118	5.5
1897	724	29	4.0	2,231	101	4.5
1898	640	45	7.0	2,980	145	4.9
1899	764	58	7.6	3,964	147	3.7
1900	594	47	7.9	3,568	163	4.6
1901	522	26	5.0	2,795	105	3.8
1902	369	25	6.8	2,140	88	4.1
1903	297	17	5.7	1,734	65	3.8
1904	265	13	4.9	1,308	56	4.3

RETURN CASES.

Owing to the reduced number of cases of scarlet fever which fell to be dealt with during the year, the pressure on the wards was not at any time excessive, and yet the occurrence of return cases in 1.5 per cent. of the dismissals is to be noted as bearing on the natural history of the disease.

In all 19 cases occurred in 17 families subsequent to the return of earlier cases from hospital. The average residence in hospital of the earlier cases was 61 days, an increase of 2 on last year. The maximum was 85, and the minimum 45 days.

The following shows the distribution of the cases throughout the three weeks subsequent to dismissal of the first case :—

RETURN CASES.—DAYS ELAPSING BETWEEN RETURN OF EARLIER AND SICKENING OF SUBSEQUENT CASES.

FIRST WEEK.		SECOND WEEK.		THIRD WEEK.	
Days Elapsing.	No. Cases.	Days Elapsing.	No. Cases.	Days Elapsing.	No. Cases.
1	...	8	1	15	...
2	...	9	...	16	...
3	2	10	5	17	2
4	2	11	...	18	...
5	2	12	...	19	...
6	2	13	...	20	...
7	2	14	1	21	...
10		7		2	

GLASGOW, 1904.—SCARLET FEVER.—SECONDARY CASES occurring in HOUSEHOLDS.

FIRST WEEK.		SECOND WEEK.		THIRD WEEK.	
Days Elapsing.	No. of Cases.	Days Elapsing.	No. of Cases.	Days Elapsing.	No. of Cases.
1	9	8	...	15	2
2	3	9	1	16	1
3	5	10	4	17	...
4	2	11	2	18	...
5	3	12	1	19	...
6	1	13	...	20	...
7	...	14	...	21	1
	23		8		4

EFFECT OF SCHOOL HOLIDAYS ON THE OCCURRENCE OF CASES.

A Table has been introduced here, similar to that already presented in dealing with diphtheria, in which the number of cases occurring during the school holidays is compared with a corresponding number of days immediately preceding and following. It shows quite a definite increase among the children of school age subsequent to the reopening of the schools in August.

GLASGOW, 1904.—SCARLET FEVER.—CASES NOTIFIED between 23rd May and 7th Oct.,
ARRANGED to SHOW the INFLUENCE of SCHOOL HOLIDAYS on CASE-INCIDENCE.

PERIODS.	Cases Notified.						Increase or Decrease.						TOTAL.
	Ages, 0—3.		Ages, 3—13.		Ages, 13 and up.		Ages, 0—3.		Ages, 3—13.		Ages, 13 and up.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
1st. { May 23 to July 7,	12	12	36	62	5	20	...	...	...	...	...	...	147
2nd. { July 7 to Aug. 22,	15	14	40	42	8	9	+ 3	+ 2	+ 4	- 20	+ 3	- 11	128
							+ 5		- 16		- 8		
3rd. { Aug. 22 to Oct. 7,	21	9	72	83	17	22	+ 6	- 5	+ 32	+ 41	+ 9	+ 13	224
							+ 1		+ 73		+ 22		
	48	35	148	187	30	51							
	83		335		81								499

MEASLES.

8,348 cases were registered in 1904, as compared with 9,161 in 1903, and 328 deaths occurred, representing a death-rate of ·418 per 1,000 of the estimated population living. 16·5 per cent. of the total deaths occurred in hospital, and 93·6 per cent. were under 5 years of age.

For several periods the death-rate has been as follows:—

1881-90, ...	·680 per 1,000 living.
1891-1900, ...	·784 „
1900, ...	·610 „
1901, ...	·655 „
1902, ...	·342 „
1903, ...	·442 „
1904, ...	·418 „

The following Table shows the death-rate per 100,000 for several large towns for the ten years 1894-1903, and for 1904:—

	1894-1903.						1904.
Glasgow, ...	64	...	...	...	...	...	42
Edinburgh, ...	47	...	...	...	...	...	18
Dundee, ...	37	...	...	...	...	...	45
Aberdeen, ...	50	...	...	...	...	...	56
Paisley, ...	42	...	...	...	...	...	63
Greenock, ...	50	...	...	...	...	...	78
Leith, ...	48	...	...	...	...	..	21
London, ...	56	...	...	...	...	...	49
Liverpool, ...	47	...	...	...	...	...	94
Manchester, ...	76	...	...	...	...	...	76
Birmingham, ...	46	...	...	...	...	...	38

The total deaths, the number occurring in hospital, and their proportion to the total deaths, for several years, are as follows:—

TABLE XXVIII.

MEASLES.

Year.	DEATHS.		Death-rate per Million.	Percentage of Total Deaths occurring in Hospital.
	Total Number.	Number occurring in Hospital.		
1895	329	46	475	14·0
1896	819	126	1,164	15·4
1897	586	73	819	12·5
1898	539	89	737	16·5
1899	544	95	828	17·5
1900	461	81	610	17·6
1901	499	89	655	17·8
1902	266	33	342	12·4
1903	346	73	442	21·1
1904	328	54	418	16·5

In Table XXIX. the number of deaths and the death-rate in each ward for 1904 is stated, together with the corresponding rates for 1903.

TABLE XXIX.
GLASGOW, 1904.—MEASLES.

MUNICIPAL WARDS.	1903.	1904.	
	Death-rate per Million.	Deaths.	Death-rate per Million.
1. Dalmarnock, ...	610	9	178
2. Calton, ...	821	13	342
3. Mile-end, ...	788	19	440
4. Whitevale, ...	533	12	363
5. Dennistoun, ...	246	3	88
6. Springburn, ...	484	56	1,324
7. Cowlairs, ...	101	24	791
8. Townhead, ...	625	16	407
9. Blackfriars, ...	520	4	178
10. Exchange, ...	...	1	447
11. Blythswood, ...	278	...	...
12. Broomielaw, ...	720	4	494
13. Anderston, ...	102	13	446
14. Sandyford, ...	302	13	501
15. Park, ...	80	4	159
16. Cowcaddens, ...	776	28	733
17. Woodside, ...	394	18	399
18. Hutchesontown, ...	477	23	555
19. Gorbals, ...	547	6	164
20. Kingston, ...	662	11	315
21. Govanhill, ...	237	10	295
22. Langside, ...	67	6	184
23. Pollokshields, ...	235	...	...
24. Kelvinside, ...	...	2	101
25. Maryhill, ...	165	14	373
— Institutions and Harbour, ...	...	19	...
CITY, ...	442	328	418

Considering the extensive prevalence of the disease during the winter of 1903, its marked activity during a second winter is a little exceptional, and during the spring of 1905 there was a decided tendency towards increasing prevalence in the Eastern and Southern Districts of the City. It has frequently

been remarked that when measles appears in epidemic form it moves in succession through several districts, and the volume of work which it throws on the administration is not infrequently out of all proportion to that which accrues from all the other diseases of an infectious nature put together.

The wards selected for illustration are those presenting the highest case-rate during the year for all diseases dealt with. Using the City rate for comparison, it will be observed that the case-rate for all diseases per million of the population is equal to 20,794, and that measles formed 55 per cent. of the total. Compared with this mean, it will be observed that in Springburn the case-rate for all diseases was 38,426 per million, of which measles formed almost 91 per cent. In Cowlairst, Maryhill, and Anderston the attack-rate for all diseases was also considerably in excess of the City mean, and in these wards measles formed 90 per cent., 65 per cent., and 59 per cent. respectively of the total.

GLASGOW, 1904.—MEASLES.—TABLE showing the PROPORTION, expressed as a PERCENTAGE, which the CASE-RATE INCIDENCE of MEASLES bears to the TOTAL CASE-RATE INCIDENCE for all DISEASES.

MUNICIPAL WARDS.	Case-rate per Million, All Diseases.	Case-rate per Million, Measles.	Percentage of Measles to All Diseases.
6. Springburn, ...	38,426	29,114	90·7
7. Cowlairst, ...	34,776	27,227	89·9
25. Maryhill, ...	36,850	24,101	65·4
14. Sandyford.	20,724	12,588	60·7
13. Anderston, ...	26,897	15,733	58·5
18. Hutchesontown, ...	27,250	12,205	44·8
CITY, ...	20,794	10,628	55·1

SCHOOL CLOSURE.

Acting in co-operation with the School Board, on the principle that closing of infant sections should anticipate instead of follow the extension of the disease, action was taken in a considerable number of instances (26 in all during the winter 1904-1905), but in 9 only during the year 1904. The results were to some extent encouraging, although the experiment has not been conducted over a sufficient area of time to estimate its full value as a method of stemming a rising tide of measles in soil fully prepared for it by a longer interval than had separated the present from the former measles epidemic. The plan adopted was to tabulate cases occurring fortnightly in each school, together with the cases occurring amongst non-scholars, in the wards in which the schools were situated; and the observation is being conducted during 1905. The following is a list of the schools closed during 1904:—

Ward XXII.—Shawlands Academy,	...	...	Closed 16th January.
„ Queen's Park School,	...	...	„ 25th February.
„ Crossmyloof „	...	...	„ 26th „
I.—Rumford Street „	...	...	„ 28th October.
XVIII.—Hayfield „	...	...	„ 29th „
I.—Strathclyde „	...	..	„ 4th November.
III.—Campbellfield „	...	...	„ 18th „
XVII.—Oakbank „	...	...	„ 8th December.
III.—Annfield „	...	...	„ 22nd „

WHOOPING-COUGH.

The deaths from whooping-cough during 1904 numbered 574, which is equal to a death-rate of 731 per 1,000 living.

The annual death-rate during several periods is shown in the following Table:—

1881-90,	...	1·150 per 1,000 living.
1891-1900,	...	·879 „
1900,	...	·933 „
1901,	...	1·116 „
1902,	...	·600 „
1903,	...	·772 „
1904,	...	·731 „

In comparison with other large towns, the rate per 100,000 for the ten years 1894-1903 and 1904 was as follows:—

	1894-1903.				1904.			
Glasgow,	...	...	...	88	...	...	...	75
Edinburgh,	...	...	...	49	...	...	...	53
Dundee,	...	...	...	51	...	...	...	75
Aberdeen,	...	...	...	54	...	...	...	92
Paisley,	...	...	...	58	...	...	...	83
Greenock,	...	...	...	63	...	...	...	33
Leith. ...	...	...	...	61	...	...	...	72
London,	...	...	...	43	...	...	...	33
Liverpool,	...	...	...	52	...	...	...	58
Manchester,	...	...	...	50	...	...	...	50
Birmingham,	...	...	...	45	...	...	...	85

The total deaths, deaths occurring in hospital, and the proportion these form to the total deaths for each year since 1895, are shown in the following Table (XXX.):—

TABLE XXX.

WHOOPING-COUGH.

YEAR.	DEATHS.		Death-rate per Million.	Percentage of Deaths occurring in Hospital.
	Total Number.	Number occurring in Hospital.		
1895	614	48	886	7·8
1896	643	68	914	10·6
1897	842	80	1,177	9·5
1898	703	86	961	12·2
1899	323	23	432	7·1
1900	694	67	918	9·7
1901	850	72	1,116	8·5
1902	466	59	600	12·7
1903	604	71	772	11·7
1904	574	96	731	16·7

The number of deaths occurring at several age-periods is already stated in Table V. at page 24.

In the several wards the deaths in 1904 and the death-rates for several periods are given in the following Table:—

TABLE XXXI.
GLASGOW.—WHOOPING-COUGH.

MUNICIPAL WARDS.	1903.	1904.	
	Death-rate per Million.	Deaths.	Death-rate per Million.
1. Dalarnock, ...	1,121	44	869
2. Calton, ...	1,130	41	1,080
3. Mile-end, ...	1,112	44	1,019
4. Whitevale, ...	681	27	816
5. Dennistoun, ...	646	25	730
6. Springburn, ...	508	47	1,111
7. Cowlares, ...	1,041	20	659
8. Townhead, ...	975	18	457
9. Blackfriars, ...	606	19	845
10. Exchange, ...	...	...	...
11. Blythswood, ...	278	2	574
12. Broomielaw, ...	1,319	8	989
13. Anderston, ...	713	27	926
14. Sandyford, ...	680	20	771
15. Park, ...	160	3	119
16. Cowcaddens, ...	1,577	34	890
17. Woodside, ...	832	27	599
18. Hutchesontown, ...	905	74	1,785
19. Gorbals, ...	602	23	629
20. Kingston, ...	690	29	830
21. Govanhill, ...	651	23	679
22. Langside, ...	304	1	31
23. Pollokshields, ...	59	...	...
24. Kelvinside, ...	...	3	151
25. Maryhill, ...	659	10	266
— Institutions and Harbour, ...	...	5	...
CITY, ...	772	574	731

DIARRHOEAL DISEASES.

The deaths registered as due to diarrhoeal diseases in 1904 numbered 705, representing a death-rate of 898 per million living.

For several periods the diarrhoeal rate has been—

1881-90, ...	700 per 1,000 living.
1891-1900, ...	843 "
1900, ...	744 "
1901, ...	1130 "
1902, ...	642 "
1903, ...	834 "
1904, ...	898 "

In the report for 1900 attention was drawn to the inclusion of several forms of gastro-intestinal catarrh among the diarrhoeal diseases—an addition which, to a large extent, will affect the value of decennial comparisons.

On the basis of the Registrar-General's returns, the death-rate of Glasgow may be compared with several other towns:—

							Death-rate per 100,000.*	
							1894-1903.	1904.
Glasgow, ...	...	...	...	...	...	...	61	90
Edinburgh, ...	...	...	...	...	...	...	43	43
Dundee, ...	...	...	...	...	...	...	85	120
Aberdeen, ...	...	...	...	...	...	...	53	69
Leith, ...	...	...	...	...	...	...	53	61
Paisley, ...	...	...	...	...	...	...	67	57
Greenock, ...	...	...	...	...	...	...	80	49
London, ...	...	...	...	...	...	...	78	104
Liverpool, ...	...	...	...	...	...	...	142	252
Manchester, ...	...	...	...	...	...	...	134	137
Birmingham, ...	...	...	...	...	...	...	127	176

* Compiled from Registrar-General's Annual Summary.

TABLE XXXII.

AGE-INCIDENCE of DIARRHOEAL DEATHS.

For the year 1904 these may be stated as follows:—

1904.	Under 1 year.	1-5.	5-15.	15-20.	20-25.	25-60.	60 years and upwards.
1st Quarter, ...	55	19	2	1	...	13	9
2nd „ ...	46	24	6	...	2	12	3
3rd „ ...	247	80	13	1	1	17	7
4th „ ...	85	31	6	1	2	11	11
Totals, ...	433	154	27	3	5	53	30

While the relation of mean temperature to the autumnal prevalence of the disease is as follows:—

	1901.		1902.		1903.		1904.	
	Mean Temp. in Shade.	Deaths under 1 year.	Mean Temp. in Shade.	Deaths under 1 year.	Mean Temp. in Shade.	Deaths under 1 year.	Mean Temp. in Shade.	Deaths under 1 year.
June, - -	54.3	23	53.5	12	54.6	31	54.7	22
July, - -	61.5	89	54.9	26	56.2	41	57.0	25
August, - -	57.1	182	54.3	23	54.6	97	56.3	131
September, -	55.4	57	53.5	42	52.8	73	53.2	91

While the foregoing Table aptly illustrates the association between the high range of air temperature in July and August and the increasing number of deaths from diarrhoea, especially among infants, the method by which this high temperature influences diarrhoeal mortality by affecting the food of infants is shown in the results of an enquiry which was made into the deaths of 111 infants during the autumn months. Of these 26 only were being nursed, 78 were wholly fed on artificial foods, and 7 had artificial foods supplemented by breast milk. In the annexed Table the death-rate from diarrhoeal diseases in each ward is given, and it will be noted that Dalmarnock, Calton, Mile-end, Whitevale, Blackfriars, Anderston, and Cowcaddens all have rates much in excess of the City mean:—

TABLE XXXIII.
GLASGOW.—DIARRHOEAL DISEASES.

MUNICIPAL WARDS.	1903.	1904.	
	Rate per Million.	Deaths.	Rate per Million.
1. Dalmarnock, ...	1,612	86	1,698
2. Calton, ...	1,669	64	1,686
3. Mile-end, ...	1,413	61	1,413
4. Whitevale, ...	770	46	1,390
5. Dennistoun, ...	369	19	555
6. Springburn, ...	943	29	686
7. Cowlairs, ...	571	27	890
8. Townhead, ...	675	32	813
9. Blackfriars, ...	1,299	28	1,245
10. Exchange, ...	448	...	...
11. Blythswood, ...	556	3	861
12. Broomielaw, ...	1,919	11	1,360
13. Anderston, ...	950	43	1,476
14. Sandyford, ...	944	18	694
15. Park, ...	361	6	238
16. Cowcaddens, ...	901	46	1,204
17. Woodside, ...	504	26	577
18. Hutchesontown, ...	762	35	844
19. Gorbals, ...	547	18	492
20. Kingston, ...	978	25	715
21. Govanhill, ...	444	24	708
22. Langside, ...	304	9	276
23. Pollokshields, ...	176	4	226
24. Kelvinside, ...	212	4	201
25. Maryhill, ...	550	33	878
— Institutions and Harbour, ...	...	8	...
CITY, ...	834	705	898

TUBERCULOUS DISEASES.

PHTHISIS.

In 1904, 1,291 deaths were registered as due to phthisis, representing a death-rate of 1·644 per 1,000 living.

For several periods the death-rate has been as follows:—

1881-90,	...	...	...	2·680 per 1,000 living.
1891-1900,	...	...	...	2·015 ,,
1900,	...	...	...	1·876 ,,
1901,	...	...	...	1·764 ,,
1902,	...	...	...	1·672 ,,
1903,	...	...	...	1·611 ,,
1904,	...	...	...	1·644 ,,

In several towns in Scotland the average rate for the ten years, 1894-1903, has been—

PHTHISIS DEATH-RATE PER 100,000 IN CERTAIN SCOTCH TOWNS FOR THE
TEN YEARS, 1894-1903, AND FOR 1904.

	1894-1903.	1904.		1894-1903.	1904.
Glasgow, ...	198	174	Paisley, ...	172	154
Edinburgh, ...	181	134	Greenock, ...	183	119
Dundee, ...	203	191	Leith, ...	184	131
Aberdeen, ...	169	125			

In the following Table the ward rates are given, while the corresponding figures for 1903 are shown for comparison :—

TABLE XXXIV.
GLASGOW.—PHTHISIS.

MUNICIPAL WARDS.	1903.	1904.	
	Death-rate per Million.	Deaths.	Death-rate per Million.
1. Dalmarnock, ...	1,357	76	1,500
2. Calton, ...	2,156	78	2,054
3. Mile-end, ...	1,992	74	1,714
4. Whitevale, ...	1,865	42	1,269
5. Dennistoun, ...	984	32	934
6. Springburn, ...	1,499	76	1,797
7. Cowlares, ...	1,141	31	1,022
8. Townhead, ...	1,350	66	1,677
9. Blackfriars, ...	2,296	53	2,356
10. Exchange, ...	1,792	3	1,340
11. Blythswood, ...	2,225	6	1,722
12. Broomielaw, ...	2,639	11	1,360
13. Anderston, ...	1,460	47	1,613
14. Sandyford, ...	1,057	29	1,118
15. Park, ...	721	14	555
16. Cowcaddens, ...	1,652	64	1,676
17. Woodside, ...	1,073	56	1,243
18. Hutchesontown, ...	1,715	79	1,905
19. Gorbals, ...	1,998	57	1,559
20. Kingston, ...	2,014	59	1,688
21. Govanhill, ...	1,154	49	1,446
22. Langside, ...	709	20	612
23. Pollokshields, ...	353	8	451
24. Kelvinside, ...	530	2	101
25. Maryhill, ...	1,017	42	1,118
— Institutions and Harbour, ...	...	217	...
CITY, ...	1,611	1,291	1,644

The reduction which has taken place in the phthisis death-rate in Glasgow during the whole period of registration is shown in the following Table:—

DEATH-RATE FROM PHTHISIS IN THE SEVERAL QUINQUENNIA SINCE THE BEGINNING OF REGISTRATION.

Years.	Death-rate per Million.	Years.	Death-rate per Million.
1855-9.	3,742	1880-4, ...	3,140
1860-4, ...	4,094	1885-9, ...	2,601
1865-9, ...	3,972	1890-4, ...	2,315
1870-4, ...	3,908	1895-9, ...	2,014
1875-9, ...	3,644	1900-4, ...	1,712

A similar comparison cannot be made for the tuberculous diseases which are not phthisis, because in 1883 a different classification was adopted; but during the last twenty-one years it may be shown that, while phthisis, has been reduced 39 per cent., in the other forms, including tubercular meningitis, the reduction has been somewhat less.

GLASGOW.—DEATH-RATES FROM TUBERCULOUS DISEASES, 1883-88 AND 1899-1904.

	AVERAGE ANNUAL DEATH-RATE.		Reduction per cent.
	1883-88.	1899-1904.	
Phthisis, ...	2,849	1,737	39
Tubercular Meningitis,	405	318	21
Other forms, ...	685	621	9
	1,090	939	14
All Tuberculous Diseases,	3,939	2,676	32

During the year 277 notifications of cases of phthisis were received from hospitals and dispensaries. In 529 cases washing or disinfection was done—the majority after death from the disease.

In addition to the measures purposely directed against phthisis, described in former Reports, no new administrative departure was made during the year under the direct auspices of the Committee on Health, but an active interest in the work of the local branch of the National Association for the Prevention of Consumption was taken both by members of the committee and officials.

In 1901 the Corporation voted £500 to the funds of Bellefield Sanatorium at Lanark, which belongs to the Glasgow branch of this association, and is devoted to the treatment of male patients only; and again, in 1904, a further sum of £5,000, to be paid in two instalments of £2,500 each. During the same period the Corporation have also given a donation of £5,000 to the Consumptive Homes of Scotland, Bridge of Weir, to be paid in five annual instalments of £1,000 each. These latter homes are exclusively for females. The present number of beds at Bellefield is 30, and 22 more are being provided; while there are 80 beds in the Consumptive Homes at Bridge of Weir. In the Lanfine Home, Kirkintilloch, for incurable consumptives, there are 14 beds.

The Corporation are thus in the position of being able to draw from the experience of these several institutions such indications as they may in time afford as to their value for the purposes of public health administration.

The deaths and death-rates in 1905 arising from diseases of the tuberculous class other than phthisis, along with the death-rates for 1903 and 1904, are given in the following Table:—

TABLE XXXVI.

GLASGOW, 1905.—TUBERCULOUS DISEASES other than PHTHISIS.*—DEATHS AND DEATH-RATES IN EACH MUNICIPAL WARD, WITH CORRESPONDING RATES FOR 1903 AND 1904.

MUNICIPAL WARDS.	Death-rates per Million.		1905.	
	1903.	1904.	Deaths.	Death-rate per Million.
1. Dalmarnock, ...	1,475	1,382	80	1,619
2. Calton, ...	1,540	1,501	53	1,437
3. Mile-end, ...	1,598	1,853	51	1,178
4. Whitevale, ...	1,658	1,481	47	1,430
5. Dennistoun, ...	1,261	1,080	30	849
6. Springburn, ...	1,523	1,348	33	784
7. Cowlairs, ...	1,041	1,220	39	1,261
8. Townhead, ...	1,426	1,575	49	1,261
9. Blackfriars, ...	1,213	800	22	994
10. Exchange, ...	448	1,340	2	945
11. Blythswood, ...	556	574	3	901
12. Broomielaw, ...	1,199	618	5	647
13. Anderston, ...	1,426	1,373	35	1,183
14. Sandyford, ...	831	887	24	935
15. Park, ...	281	357	9	360
16. Cowcaddens, ...	1,401	1,571	49	1,312
17. Woodside, ...	986	1,198	32	724
18. Hutchesontown, ...	1,525	1,543	50	1,235
19. Gorbals, ...	876	903	46	1,275
20. Kingston, ...	892	1,516	36	1,041
21. Govanhill, ...	1,095	915	44	1,303
22. Langside, ...	405	551	13	361
23. Pollokshields, ...	530	395	9	504
24. Kelvinside, ...	265	...	9	436
25. Maryhill, ...	989	1,145	34	872
— Institutions and Harbour, ...	...	...	39	...
CITY, ...	1,196	1,209	843	1,073

NOTE.—All deaths from Meningitis under 5 years of age are included.

NOTIFICATIONS OF PHTHISIS.

During the year 573 phthisical cases were notified, details of which are contained in the following tabular statement:—

TABLE XXXVII.

GLASGOW, 1905.—*NUMBER of CASES ADMITTED to STOBHILL HOSPITAL APPLYING to the PARISH for RELIEF, or ATTENDING the ROYAL INFIRMARY DISPENSARY DURING THE YEAR.

AGE.	Stobhill.		Parish.		Royal Infirmary Dispensary.		TOTAL.	
	M.	F.	M.	F.	M.	F.	M.	F.
1 — 4, ...	1	...	1	...	...	2	2	2
5 — 14, ...	2	...	3	1	12	14	17	15
15 — 19, ...	5	4	4	8	18	12	27	24
20 — 24, ...	4	1	5	4	18	12	27	17
25 — 29, ...	25	19	52	23	62	38	139	80
60 and upwards, ...	5	...	4	...	...	...	9	...
Not stated, ...	60	21	90	38	2	3	152	62
	102	45	159	74	112	81	373	200
	147		233		193		573	

* Cases dealt with more than once during the year have been counted as one.

Washing or disinfection was done in connection with 689 cases during the year, 553 of which were for deaths from the disease.

RESULTS OF AN ENQUIRY INTO THE SOCIAL AND SANITARY CONDITIONS OF CERTAIN CASES OF PHTHISIS.

The circumstances under which this enquiry was undertaken, together with its scope and object, are fully discussed in the accompanying memorandum, which is presently under consideration of the Committee:—

PULMONARY PHTHISIS.

MEMORANDUM BY MEDICAL OFFICER OF HEALTH.

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FACTS REGARDING 1905 ENQUIRY.

Towards the close of 1904 a detailed enquiry was begun into the social and sanitary circumstances of certain cases of phthisis which our limited system of notification brought to knowledge.

The cases selected for investigation were those notified as occurring during the three months ending March 15th, 1905, within the area of the city north of the Clyde.

Office arrangements made it possible to place the whole field of investigation in the hands of one observer, and Dr. Currie, who was then serving in the capacity of pupil assistant, was placed in charge of it.

With such limitations as will be afterwards noted, each case was visited, and many revisited time and again, the object being to make each the subject of detailed enquiry, so that its ultimate bearing on administrative requirements should be defined.* Home conditions, and, where possible, those of occupation, were noted. Advice as to precautionary measures against the dissemination of infection was given, and suggestions were made as to the forms of relief available when home conditions seemed unsuitable. After an interval of two months the "home" cases were again visited, with the object of ascertaining how far the suggested action had proved practicable. Finally, the information thus acquired was carefully tabulated by Dr. Currie, and its significance discussed in a report prepared by him, which the limits of this memorandum unfortunately preclude from reproduction.

The original object of this memorandum was to summarise these and to submit such suggestions as seemed reasonably to emerge from the facts which the inquiry elicited. During its preparation, however, the circular letter of the Local Government Board, of 10th March, 1906, on the "Administrative Control of Pulmonary Phthisis," was issued, and the memorandum has been expanded to include a consideration of its bearing on our present methods.

NUMBERS NOTIFIED AND SOURCE THEREOF.

In all, 267 cases were notified during the period. In 222 the source of information was as follows :—

(1) Poor Law Authorities, ...	100
(2) Dispensaries—Royal Infirmary, ...	18
Western Infirmary, ...	4
Victoria Infirmary, ...	1

	23
(3) Discovered by staff, ...	28
(4) Reported by general practitioners, ...	2
(5) From private sources, ...	3
(6) From requests by medical practitioners for bacterial examination of sputa, ...	66

	222

In 45 cases no information for the purpose of the enquiry could be obtained, for the following reasons :—

Not found at address notified, ...	26
Resident at address, but absent from Glasgow at time of enquiry, ...	2
Stobhill cases resident out of bounds, ...	3
Dead, ...	4
Not phthisis, ...	10

	45

The 66 cases, whose occurrence was only known to us because sputum had been sent for examination, were excluded from the enquiry, which was confined to the 156 cases remaining.

* For form of schedule used in enquiry see Appendix to this Memorandum, page 112.

AGE AND SEX DISTRIBUTION.

Of the total, 143 were males and 79 females. Only 13 were under 20 years of age, and 19 were over 50—a further illustration of the economic loss which the incidence of the disease during the most productive period of life entails.

RELATION TO SIZE OF HOUSE.

The social conditions of the patients may be thus indicated :—

Houses.	Cases.
One apartment, ...	35
Two apartments, ...	71
Three do., ...	11
Lodging-houses, ...	23
Vagrants and others, ...	16
Total, ...	156

THE SOCIAL ASPECT OF TUBERCULAR INFECTION.

Some preliminary considerations regarding the infectivity of tubercle are here necessary for a full appreciation of the facts which follow. For brevity, however, they are stated dogmatically rather than as reasoned propositions, as they have wide acceptance.

FACTS REGARDING SUSCEPTIBILITY.

Mankind is naturally refractory to tubercle, but conditions which depress vitality make him susceptible, apart from any family tendency. These conditions include mode of life, as well as character of occupation and condition of housing. Being rendered susceptible, whether he contracts the disease or not will be influenced by the conditions under which he is exposed to infection, the duration of the exposure, and the material form, both as to kind and quantity of the infecting agency.

FACTS REGARDING SPUTUM AND BACILLARY INFECTION.

Two forms may be contrasted. So long as sputum is moist the bacillus is fixed, but with drying it may be disseminated as dust. In drying it becomes attenuated—that is, its virulence is modified.

The most active and virulent form of infecting agent is the droplet or spray infection, projected into the atmosphere in the act of coughing.

The suitable conditions for contracting infection will, therefore, be supplied by the prolonged exposure of one whose natural resistance is impaired in the relatively stagnant atmosphere of a badly ventilated sleeping apartment occupied by a phthisical patient affected with cough.

These conditions will be seen to prevail in a considerable proportion of our one-apartment houses.

The conditions just noted are subject to certain qualifications :—

- (1) *Absence of bacillus from sputum.*—In 16 of 135 cases of which record is available, there were no bacilli in the sputum, although the physical signs of the disease were incontestable—that is, nearly 12 per cent. were, at the time of enquiry, either non-infective or infective only in a minor degree.
- (2) *Housing Condition.*—
 - (a) *Diluting effect of cubic space.*—The effective power of a given number of virulent bacilli is reduced by their dissemination. The larger the space the smaller the number of bacilli per unit of space. It is like the bursting of a charge of shrapnel. Outside the danger zone the chances are against being hit. Of the 32 cases occurring in houses of one apartment, the number of other occupants (stated as adults) averaged 3 per house, and all were within the danger zone.
 - (b) *Internal Ventilation.*—A former enquiry* showed that the death-rate from phthisis in houses of one apartment was greater than elsewhere, and now we have some facts which, partially at least, serve to explain this. Accepting through-and-through ventilation as the standard of healthy ventilation of rooms, and free access of air to mean unimpeded access of air to two sides of a tenement, the following comparisons are significant :—

* Death-rates in one-apartment houses, p. 9.

CONDITION OF HOUSE AS REGARDS THROUGH-AND-THROUGH VENTILATION.

	Through-and-through.	Not through-and-through.	Total.	Percentage through-and-through.	Percentage not through-and-through.
One apartment, -	0	35	35	0·0	100·0
Two apartments, -	32	33	65	49·2	50·7
Three „ -	8	0	8	100·0	0·0
	40	68	108	37·0	62·9

CONDITION AS REGARDS ACCESS OF AIR TO TENEMENT.

	Free access.	Restricted access.	Total.	Percentage of free access.	Percentage restricted access.
One apartment, -	13	18	31	41·9	58·0
Two apartments, -	22	35	57	38·5	61·4
Three „ -	3	3	6	50·0	50·0
	38	56	94	40·4	59·5

37 per cent. only of the houses had through-and-through ventilation, and not one of these was a single apartment. Only in one-half of those of two apartments was it possible.

(c) *Precautions regarding Sputum.*—The following Tables require only a word of explanation. The term “effective precautions,” as here employed, has relation only to the form of infection which is contained in sputum. In no case was the patient aware of the risk attendant on coughing, and none had been informed of the value of the simple expedient of holding a handkerchief in front of the mouth during the act of coughing as a means of interposing a barrier to the disposal of droplet infection. In 36 per cent. of the cases effective precautions against the spread by means of sputum were being taken; in 22 per cent. these were incomplete; in 30 per cent. they were wholly absent. The large proportion of cases taking only incomplete or no precaution in the lodging-houses suggests the desirability of at once issuing an instruction to those places on the subject.

OBSERVATION OF PRECAUTION WITH REGARD TO SPUTUM.

Description of House.	Effective Precaution.	Incomplete Precaution.	No Precaution.	Sputum absent.	Total number of Patients.
One apartment, -	11	8	9	4	32
Two apartments, -	29	17	15	9	70
Three „ -	6	2	2	0	10
Lodging-house, -	2	3	15	3	23
	48	30	41	16	135
The above stated as Percentages.					
One apartment, -	34·3	25·0	28·0	12·5	100
Two apartments, -	41·4	24·2	21·4	12·8	100
Three „ -	60·0	20·0	20·0	0·0	100
Lodging-house, -	8·6	13·0	65·2	13·0	100
	35·5	22·2	30·3	11·8	100

DURATION OF ILLNESS.

The risk of droplet infection is most likely to occur during advanced stages of the illness, and of the 156 cases noted, 27 had been ill six months, and 36 for twelve months, so that of the remainder, forming 60 per cent. of the whole, a considerable portion were in the stage when this active form of infection most prevails.

NUMBER OF PERSONS EXPOSED TO INFECTION.

In the households of 112 of the cases, 487 persons forming their families were resident at the time of enquiry. It would be inaccurate, however, to suggest that all were exposed to equal risk of infection. Satisfactory isolation may be practised in houses of two apartments and upwards, even in one-apartment houses precautionary measures against spread will at least considerably modify risk. The several degrees of risk, therefore, affecting the 487 persons just referred to, may be inferred from the following tables :—

OBSERVATION OF PRECAUTIONS WITH REGARD TO SPUTUM IN RELATION TO
NUMBER OF LIVES AT RISK.

Description of House.	Effective Precaution.	Incomplete Precaution.	No Precaution.	Sputum Absent.	Total num- ber of lives at risk.
One apartment, -	27	22	26	14	89
Two apartments, -	147	80	76	41	344
Three „ -	30	10	14	—	54
	204	112	116	55	487
The above stated as Percentages.					
One apartment, -	30·3	24·7	29·2	15·7	100
Two apartments, -	42·7	23·2	22·1	11·9	100
Three „ -	55·5	18·5	25·9	0·0	100
	41·9	22·9	23·7	11·2	100

Among other things these tables show that 228, or 46·6 per cent. of the whole number of healthy persons resident in infected households, were exposed to risk, because no, or only incomplete precautions, were being taken, and that of these 48 were resident in one-apartment houses.

NUMBER EXPOSED TO INFECTION DURING SLEEP.

The extent of unavoidable risk may be suggested by deducting from the total number of inhabitants of the infected houses the numbers resident in those where the patient had a room to himself. It was found that 23 of the infected persons had sleeping accommodation apart from the other members of their families, and 108 members of their families had the risk thus correspondingly reduced. But a considerable number of the 346 remaining occupied the same room as the patient during sleep.

Houses.	Total Number.		Number sleeping alone in a room.		Per cent. sleeping alone in a room.	
	Patients.	Corresponding lives.	Patients.	Corresponding lives.	Patients.	Corresponding lives.
One apartment, -	32	89	0	0	0·0	0·0
Two apartments, -	65	314	18	76	27·6	24·2
Three „	9	51	5	32	55·5	62·7
	106	454	23	108	21·6	23·7

ADDITION TO NUMBER OF PERSONS EXPOSED BY REASON OF FREQUENT CHANGE OF
RESIDENCE OF PATIENTS IN SMALLER HOUSES.

The number of persons exposed to infection is not to be accurately estimated, however, solely from the number forming their families. Carelessness in the disposal of sputum will readily establish some degree of infectivity in a house, which will remain after it has been evacuated by the infected persons, unless disinfection is carried out. Frequent change of residence may thus, in a comparatively short period, create many centres of infection for subsequent occupants; and few things more clearly illustrate the exigent character of the forces which impel the sufferer from phthisis in smaller-sized houses to an almost constant change of residence. In the following table the length of residence in the houses occupied at the time of inquiry by the individual patients is stated:—

Duration of residence in years.	Number of patients in houses of—			Total.
	One apartment.	Two apartments.	Three apartments.	
$\frac{1}{12}$	5	5	—	10
$\frac{2}{12}$	3	3	1	7
$\frac{3}{12}$	3	4	—	7
$\frac{6}{12}$	5	4	1	10
1	5	13	2	20
2	1	4	2	7
3	4	10	—	14
4	3	5	2	10
5	—	5	—	5
6	—	6	1	7
7	1	—	—	1
8	1	1	1	3
9	1	2	—	3
10	—	—	—	—
Over 10	—	5	—	5
	32	67	10	109

Of those in one-apartment houses, one-half had a residence in the houses in which they were found of less than a year, and mostly less than six months. It would seem inevitable, therefore, that a considerable number of the consumptive patients in one-apartments must thus multiply the number of infected houses many-fold during the course of their illness, when no machinery exists for following up his change of residence by a process of disinfection.

STRUCTURAL CONDITION OF HOUSES.

Related to this is the structural condition of the houses occupied. An imperfectly ventilated house will affect the degree of risk to immediate contacts, while a structurally defective one interposes barriers to effective cleansing and disinfection, and so increases the risk to remote contacts—that is, to those who subsequently occupy the house vacated by a phthisical patient. The degrees of imperfection in ventilation have already been discussed, and in the following table the one-apartment house again acquires prominence by reason of the relatively low percentage in good repair :—

Description of House.	Good repair.	Faulty repair.	Total.	Per cent. in good repair.	Per cent. in faulty repair.
One apartment, - -	10	23	33	30·3	69·6
Two apartments, - -	50	15	65	76·9	23·0
Three „ - -	7	2	9	77·7	22·2
	67	40	107	62·6	37·3

NATURE OF OCCUPATION WITH REFERENCE TO DUST.

In all this was noted, and the general relationship may thus be expressed :—

Sex.	Number.			Per cent.	
	Total.	Exposed to dust.	Not exposed to dust.	Exposed to dust.	Not exposed to dust.
Males, - - -	99	39	60	39·4	60·6
Females, - - -	57	6	51	10·5	89·5
	156	45	111	28·8	71·1

In connection with the prevalence of the disease among stone masons, Dr. Currie makes the following note :—

“Of the nine masons, all were exposed to the dust of stone. With eight of the nine the subject of dust suppression was debated by the writer. It was shown that five were in the habit of wetting the stone under treatment, and that one who had worked in Canada was familiar, in addition, with the use of a respirator. Two of the five were definitely aware that wetting was a safeguard to health, one was less minutely informed, and two used water primarily to meet the annoyance of flying dust or to darken a sunlit surface. It was shown that three did not wet the stone, and were unaware that they ran risk by the omission. The attitude of the trade in general on the subject of precautions was also discussed with these workmen. One stated that men moisten the stone if time permits, but fear the foreman’s displeasure. Another held that all masons know of the need to wet stone, though few take the trouble to wet it. Another maintained that wetting the stone was unheard of in the trade. According to some wetting was a hindrance to work, and, according to others, a help. There is need for enlightenment among workers in stone if these views are in any sense representative.”

ALCOHOL.

The proportion admitting alcoholic excess is large, although, in explanation, it should be remembered that ignorance of its remote results frequently prompts the sufferer from phthisis to have recourse to alcohol, as the only stimulant he is familiar with, by way of obtaining even temporary relief to the increasing exhaustion.

Sex.	Number.			Per cent.	
	Total.	Intemperate.	Temperate.	Intemperate.	Temperate.
Males, - - -	99	45	54	45·5	54·5
Females, - - -	57	11	46	19·3	80·7
	156	56	100	35·8	64·1

ASSOCIATED FAMILY HISTORY OF PHTHISIS—DIRECT INFECTION.

Of 99 males, 33, and of 57 females, 26 (46 per cent.) had a family history of phthisis. Facts suggesting *direct infection* were elicited in 15 per cent of the former, and 12·3 per cent. of the latter. In 4 males the source was in a fellow workman or companion, and in one female it was probably a house infection. In all the others the apparent source was a relative.

SIGNIFICANCE OF THE FACTS ELICITED BY THE ENQUIRY.

Number Notified.—Do they fairly represent the numbers occurring who require administrative supervision?

The enquiry was restricted to a period of three months, and to an area which carries about three-fourths of the population of the city. The months of observation are the worst in the year in respect of severity of climatic conditions—the death-rate is highest in them—and the cases of respiratory diseases are correspondingly increased. In consequence, the number of cases of phthisis seeking relief will tend to exceed that of any period of similar duration later in the year. Thirty per cent., moreover, were only known to us, because bacterial verification had been sought by the practitioners in attendance, and as these meanwhile are only dealt with administratively at the request of practitioners, they may be excluded from this calculation.

What relationship do the remaining numbers bear to the total volume of current cases, and what significance attaches to the source from which our information was obtained?

One hundred were poor law cases, and 56, in almost equal proportion, were intimated from the dispensaries of the general hospitals, or were discovered by the office staff in the course of their daily visitations for other purposes. From other sources there was practically no information, and the total cases registered for the year only numbered 581. This latter figure fairly represents the annual yield of information from the sources we are considering, as during the six years since 1900, when the present scheme came into operation, the total notifications barely reach 3,000, while the deaths from phthisis number 7,741. It is, therefore, still impossible to construct a chart of the distribution of phthisis in Glasgow save from its deaths.

While there is a certain degree of constancy in the volume of information which these sources supply, we may inferentially arrive at a conception of the class of cases which are not being notified by comparing the relative productiveness of the several sources of information in the various wards.

In the following table it may, for illustration, be observed that Calton, Springburn, and Townhead, with 14, 15, and 10 poor law cases respectively, have 8, 0, and 2 as the numbers seeking “bacterial” verification, but only 5, 2, and 3 cases from other sources; that Dennistoun, with 10 “bacterial” cases, had only 2 “others;” and that in general there is an entire lack of correspondence between the number of “bacterial” cases and the “others,” excluding poor law. What this is due to will afterwards be considered.

Ward.	Poor-law.	Bacterial.	Others.	Total.
I. Dalmarnock,	5	...	10	15
II. Calton,	14	8	5	27
III. Mile-end,	9	4	4	17
IV. Whitevale,	8	5	7	20
V. Dennistoun,	3	10	2	15
VI. Springburn,	15	—	2	17
VII. Cowlairs,	4	2	—	6
VIII. Townhead,	10	2	3	15
IX. Blackfrairs,	8	3	5	16
X. Exchange,	1	—	—	1
XI. Blythswood,	—	—	—	—
XII. Broomielaw,	5	—	1	6
XIII. Anderston,	3	3	5	11
XIV. Sandyford,	—	6	2	8
XV. Park,	1	5	1	7
XVI. Cowcaddens,	6	3	3	12
XVII. Woodside,	6	3	3	12
XXIV. Kelvinside,	—	6	—	6
XXV. Maryhill,	2	6	3	11
	100	66	56	222

This table thus amplifies the information given on page 99. Our present method of notification brings us into touch with two main groups—those who seek poor-law relief (lodging-houses supplying about one-fourth) and those who are able to obtain the constant medical attendance which the request for bacterial investigation suggests. But the numbers occurring in the population between these extremes can scarcely be regarded as adequately represented by the 56 “others” (224 as a yearly number) in view of the total number of deaths occurring from phthisis annually, which, for the first time, in 1905 fell below 1,200. And when the source of information in these 56 cases is considered (Table on page 99), it affords evidence, I think, that until the financial pressure of a prolonged illness compels the consumptive to seek the aid of a charitable dispensary, or he is discovered by the office staff, our present methods fail to bring him within administrative supervision. It is during this stage that the frequent changes of residence, which we have seen to occur, must expose many dwellings in succession to opportunities of infection, and of which no record is obtainable.

Moreover, it is to supply this gap that the Tuberculosis Dispensary in connection with the Bellefield Sanatorium was recently opened; but its work will more fittingly be considered when administrative measures are being discussed.

The facts elicited by the enquiry, therefore, seem to justify the conclusion that by our present system a not inconsiderable number of cases requiring administrative supervision occur of which we have not sufficiently early knowledge, and that it is the need of the individual patient rather than the requirement of public health which is the controlling factor in bringing him to knowledge at all.

Social Factors.—Defective housing conditions, with concomitant intemperance and occupational risks, reveal the essential relationship between tuberculosis and poverty. Neglect of precaution against sputum increases as the available house-room diminishes, until we reach 65 per cent. of the cases in lodging-houses, who take no precaution whatever. For effective prevention, each case as it occurs should be made the rallying point of administrative action, so that the physical circumstances of faulty structure and defective ventilation, whether in house or workshop, which it reveals, may be remedied.

Action in this direction is quite as necessary as education in precautionary methods. Repeated visitation by the officers of the staff would ensure some degree of observance of those latter, while the former might be expected in time to appreciably reduce the local conditions which tend to encourage the spread of the disease.

CLASSIFICATION OF CASES.

For administrative purposes, some classification is necessary; but this must, obviously, have reference rather to the object in view than to the pathological condition present. It cannot be too frequently reiterated that the prevention of phthisis will only be accomplished by removal of the conditions which foster it. Phthisis prevails in our midst because of the low standard of housing we are still perforce compelled to accept. No provision of sanatoria for early cases, or of homes of rest for the very advanced, will, in the least degree, abate the necessity for keeping this steadfastly in view. Forms of individual relief are useful and valuable adjuncts—they may provide for the segregation of the actively infective, or place the incipient case in the way of improvement—but the reduction of phthisis in the past has proceeded without organised help of either kind. With the modern views regarding the part played by sputum, and especially by droplet infection, in spreading the disease, however, some supervision of the individual may reasonably be added; and the form which this supervision should take suggests the administrative classification necessary.

Emerging from the enquiry, as most urgently requiring administrative supervision, there must, I think, be placed first those patients where cough is urgent and expectoration profuse, and where the size of the house or the conditions of its occupancy establish for the other inmates a risk of infection. Should it be impossible to meet this by obtaining observance of the relatively simple precautions which are necessary, it would be a perfectly logical development of administrative supervision to offer the patient an opportunity of removal, because we should thereby remove a centre of infection. But removal to hospital in the ordinary sense is inapplicable. A patient removed for any of the infectious diseases usually dealt with leaves his home with hope of returning well. Here there is no such prospect, and removal could only be urged on the plea of unavoidable risk to the remaining inmates; and even then the complete picture is only supplied by the conception of district homes, to which relatives would have ready and convenient access. Experimentally, in times of lessened epidemic pressure, the reception-houses or hospitals might have portions set apart for this purpose at little additional cost save for food.

THE QUESTION OF SANATORIUM TREATMENT.

So far administrative action proceeds on a definite basis. It is directed towards the removal of a centre of infection when other means of controlling it fail. To proceed beyond this is to enter the field of experiment.

The general question of the utility of sanatorium treatment need not here detain us. Its value in selected cases and under given conditions is admitted. Can we select the cases and ensure the conditions, especially those which demand attention after the patient's dismissal? We have not in this country any organisation comparable to the Imperial Insurance Department of Germany, which is so frequently urged as an example to be followed. Under it the insurance institutions are bound to assist with money the relatives of any sick person undergoing treatment, if, until then, they were supported by his earnings. In addition, effort, which appears to be frequently successful, is made to procure suitable accommodation and work for the patient after his discharge. All this presupposes an economic organisation which does not exist among us.

Short of complete restoration to health the sanatorium method of treatment has been modified and adapted to educative purposes, so that the consumptive may thereby obtain some experience which he may turn to useful account in his own home. And so we have systems of continued but short residence, day residence, or night residence, each with its advocates, but with few data whereby to estimate their economic value for administrative purposes.

Few cases admitted to a sanatorium fail to respond to the improved housing and feeding there provided.

The final results of the treatment at Bellefield cannot yet be fairly stated, but of the 64 Glasgow patients discharged till 16th March, 1906, 6 at least were at work 9 months after dismissal, and it is probable that of the 14 who were able to remove to the country some also are in employment.

PRESENT CONDITION OF 64 GLASGOW PATIENTS DISCHARGED FROM BELLEFIELD
SANATORIUM PRIOR TO 15TH MARCH, 1906.

	Length of time out of Bellefield.				Total.
	- 3 Months.	- 6 Months.	- 9 Months.	- 12 Months.	
At work, - -	2	6	3	6	17
Not at work, - -	1	9	3	4	17
Gone abroad, - -	—	—	1	4	5
Gone to country, - -	1	1	3	9	14
Dead, - - - -	1	1	5	2	9
No information, - -	2	—	—	—	2
TOTAL, - - -	7	17	15	25	64

INADEQUACY OF PRESENT PROVISION FOR PURPOSES OF TREATMENT OR EDUCATION.

The committee are aware of the provision already made at Bellefield and Bridge of Weir for males and females respectively. With those should be included the beds in the Lanfine Home at Kirkintilloch, although the object here is rather of the nature of the homes for very advanced cases already referred to.

Reverting to the results of the enquiry, we can find some indication of the inadequacy of this provision to meet either of the objects here in view.

Of the 100 Poor-Law cases, 97 were already in Stobhill, and 3 satisfactorily provided for at home. Of the remaining 56, a few refused assistance, and some were too far advanced for any practicable suggestion of removal to be made. Excluding both classes, there remained 45 to whom certain advice was offered, and after two months' interval it was found that in 16 cases only could it be followed. It is significant that of these 16, 14 were dealt with by the Poor-Law Authorities at Stobhill.

TABLE SHOWING HOW FAR ADVICE OFFERED TO 56 PATIENTS COULD BE FOLLOWED.

At Time of Visit.		After an Interval of Two Months.				
Place advised.	No. of Cases.	In place advised.	In other Sanatorium.	Still at Home.	Died at Home.	Not Found.
Stobhill, - - -	27	14	—	7	6	—
Bellefield, - - -	11	—	2	9	—	—
Quarrier's, - - -	3	—	—	1	1	1
Country, - - -	2	2	—	—	—	—
Better house, - -	2	—	—	1	1	—
	45	16	2	18	8	1
Advice impracticable, -	11	—	—	5	5	1
	56	16	2	23	13	2

EXPERIMENTAL USE OF INFECTIOUS HOSPITALS FOR EDUCATIVE PURPOSES.

This method has already been adopted by several Local Authorities. It assumes that some portion of the epidemic bed provision may be utilised for the educative treatment of consumption during periods of lessened epidemic pressure.

A statement of the comparative demands on the hospitals accommodation now and ten years ago may be of assistance to the Committee in considering this question.

	1893-4-5.	1903-4-5. *
Population in thousands, ...	644	793
Number of hospital beds, ...	740	1,065
Average annual number of patients treated, ...	5,920	5,722
Average daily number, ...	656	629
Maximum number under treatment at one time, ...	971†	956
	(8/10/95.)	(18/12/05.)

CASES SUITABLE FOR EDUCATIVE TREATMENT.

It will have been apparent that our enquiry affords little guidance here. On general grounds it may be accepted that to be effective it must be available at an early stage of the disease. But early cases do not form a large proportion of those seeking such dispensary relief as was then available, and the conditions of the enquiry almost restricted it to those in whom the disease had so advanced that work had to be given up.

THE ADMINISTRATIVE CONTROL OF PULMONARY PHTHISIS.

The object of the Board's circular is to place before Local Authorities the outline of a scheme by which administrative action for the repression of consumption may be developed. Copies thereof are already in the hands of the committee.

Notification.—In the preceding section of the memorandum there is, I think, ample evidence that voluntary unpaid notification limited to dispensary cases affords only a very fragmentary picture of the distribution of the disease in Glasgow.

Sections I. and IV. of the Circular mark a notable advance in the view which may be taken of consumption administratively—

“Pulmonary phthisis . . . is an infectious disease within the meaning of the Public Health (Scotland) Act, 1897.” (Sec. I.)

“For the effective application of the Public Health Act to pulmonary phthisis a system of notification is essential.” (Sec. IV.)

Hitherto the prevailing opinion has been to regard the inclusion of consumption among the notifiable diseases as necessarily bringing into operation all the provisions of the Public Health Act dealing with infectious disease, but the risk of oppressive interference with the patient's employment, and the requirements of the School Clause (Section 57) have been advanced as sufficiently cogent arguments against the proposal. Moreover, the Imperial Legislature in granting to Sheffield a clause (Sheffield Corporation Act, 1903, Section 45) making notification compulsory, expressly excluded consumption from the provisions of any general or local Act of Parliament relating to infectious disease, and in lieu of these substituted certain others. But the Circular, by implication rather than by express statement (see object of sections of Public Health Act referred to in Sections II and III. of Circular), indicates that the provisions of the Act may be

* To complete the comparison established in these periods, the average cost may be added :—

	1893-4-5.	1903-4-5.
Average cost of treatment per patient, ...	£5 18 11	£9 8 0
Average cost per occupied bed, ...	53 8 0	86 5 7
Average daily cost per patient, ...	0 2 10	0 4 8

A comparison of the proportion of this increase due to food and wages respectively seems desirable. Dr. Mackintosh informs me that in the same interval the cost per bed in the Western Infirmary rose from £55 to £69.

† The number of beds is stated as for adults, but the number of patients includes a very considerable proportion of children, for whom the cubic space allowed is reduced.

applied in a selective manner, so that the way is open for the Local Authority considering whether, assuming a departure from the present method of partial notification is desirable, the system to be adopted shall be voluntary or under statute.

To consider the relative advantages of statutory and voluntary notification for the whole area of the city would re-open the discussion which ended in the passing of the present Infectious Disease (Notification) Act, without the relief of a single new argument. There is this difference, however, and it is no inconsiderable one, notification of the other infectious diseases followed years of administrative treatment of them. Here, on the other hand, it will provide the doorway to administration.

The advantage, therefore, of notification is entirely contingent on the action which the Local Authority are prepared to take when the occurrence of cases is known. Sec. 7 (2) of the Infectious Disease (Notification) Act empowers a Local Authority to extend the Act temporarily for a period to be defined in their resolution.

So much of the ground covered by the circular has been already dealt with that few additional notes are here requisite.

DISINFECTION.

House Disinfection and Washing.—Disinfection after death, and very occasionally during the occurrence of cases, at the request of the medical attendant was begun in 1896, in which year also a leaflet of instructions was first issued by the Committee. Since 1900 the individual cases thus dealt with annually have varied from 387 in 1891 to 689 in 1905. The increasing frequency with which current cases are accepting washing and disinfection is shown by an increase from 1.5 disinfections per case in 1904 to 2.2 per case in 1905. This, however, gives undue prominence to repeated acts of disinfection, and tends to obscure the inelastic character of our sources of information, for while in 1900 we knew of 577 current cases, this number in 1905 had only increased to 689. And with rare exceptions disinfection of houses vacated by consumptives is not presently practised owing to lack of information.

Disinfection of Public Conveyances, Schools, and Places of Public Resort.—The need for this arises from the practice of indiscriminate spitting. Abatement of this practice can only be expected when educational advancement has ensured a more complete attention to the conditions upon which infection depends. In the tramway cars spitting is already dealt with by bye-laws, and many railway companies placard their carriages, stations, and retiring rooms with warnings against the practice. It is therefore by stimulation of public opinion to an appreciation of the special risks which may lurk behind simple dirtiness that any extensive reform in habits of this sort may be expected. Persistence in spitting on the floor of any place of assembly should render the offender liable to summary eviction. Actual disinfection by the Local Authority should be restricted to places where probability of definite infection can be established; indeed, it is doubtful whether the clauses of the Act could be applied in any wider sense. Schools are swept daily (although dry dusting has certain objections of its own) and washed periodically. Churches undergo a weekly sweeping. In some of the theatres considerable effort at maintaining cleanliness seems to be made.

But the circumstances which have been already referred to, showing the close association between infectivity and efficient ventilation, reveal the need for a special scrutiny of the provision made for the through ventilation of rooms in all plans of new houses submitted to the Dean of Guild Court; while definite effort is required to secure the ventilation of all places of assembly by measures which will be effective during the time they are in use.

TUBERCULOSIS DISPENSARIES.

For executive purposes these, I think, should be ranked with the provision for isolating advanced cases as of the first importance.

Their object is well described in Dr. Philip's report, which is annexed to the Board's circular.

Their organisation should combine home supervision with treatment of the patient, and they should be able to ensure his admission to a sanatorium when this is necessary.

Their development on effective lines will, however, depend on the facilities which they have at their command for benefiting the individual patient, and co-operation between the Local Authority and philanthropic agencies appears to offer the most likely method of accomplishing this.

Under the arrangement which was made in December, 1905, with the Glasgow Branch of the National Association for the Prevention of Consumption, the following cases have been dealt with at the Dispensary now being conducted at the Sanitary Chambers :—

PHTHISICAL CASES ATTENDING DISPENSARY AT SANITARY CHAMBERS, 23 MONTROSE STREET, FOR JANUARY, FEBRUARY, AND MARCH, 1906.

Month 1906.	Applicants.			By whom sent.					How Glasgow Cases disposed of.				Housing of Glasgow Cases.					
	Glasgow.	Beyond.	Total.	Secretary.	Infirmary.	Own Dr.	Own a/c.	C. O. S.	Bellefield.	Poor House.	Died.	At Home.	1 apt.	2 apts.	3 apts.	4 apts.	Inst.	Not Found.
Jan.,	23	8	31	13	5	1	12	...	11	...	1	11	1	19	2	...	1	...
Feb.,	18	17	35	18	2	10	4	1	4	1	...	13	4	9	3	2	...	...
Mar.,	19	6	25	12	4	8	1	...	...	3	...	16	3	10	2	1	2	1
	60	31	91	43	11	19	17	1	15	4	1	40	8	38	7	3	3	1

A. K. CHALMERS.

Sanitary Chambers,
Glasgow, 6th April, 1906.

APPENDIX.

ABRIDGEMENT OF ROUTINE FORM OF ENQUIRY.

Date of visit.
 Municipal Ward.
 Date of leaving work.
 Name.
 Age.
 Birthplace.
 Address.
 Lodger or householder.
 Physique.
 Comfort of life.
 Other cases in family, relatives, or associates.

Present house—

Number of apartments.
 Number of inmates.
 Number sleeping in same room as patient.
 Age.
 Cleanliness.
 Dryness.
 Repair.
 Exposure to air.
 Internal ventilation.
 Business conducted in house.
 History of house regarding phthisis.
 Duration of residence in present house.

House in which illness began—

The same details as in case of present house.

Intervening houses—

The same details as in case of present house.

Present occupation—

Duration.
 Details of work and workshop.
 Association with phthisical work-fellows.

Occupation when illness began—

The same details as in case of present occupation.

Intervening occupations—

The same details as in case of present occupation.

Previous history—

Disease.
 Injury.

Present illness—

Duration onset.

Physical condition—

Sputum.
 Progression.

Precautions taken regarding sputum.

Habits.

Diet.

Source of infection.

Accessory causes.

DISEASES OF RESPIRATORY ORGANS.

2,853 deaths from respiratory diseases other than phthisis, but including "croup," were registered during 1905, representing a death-rate of 3,569 per million living, compared with a rate of 4,036 for 1904.

The death-rate per 1,000 living for several periods has been—

1881-90, ...	5·870	1902, ...	4·836
1891-1900, ...	4·993	1903, ...	3·927
1900, ...	4·979	1904, ...	4·036
1901, ...	4·335	1905, ...	3·569

The deaths for 1905 and the death-rates in each of the Municipal Wards are given in the Table which follows:—

TABLE XXXVIII.

GLASGOW, 1905.—RESPIRATORY DISEASES (including CROUP).—DEATHS and DEATH-RATES in each MUNICIPAL WARD, with corresponding rates for 1903 and 1904.

MUNICIPAL WARDS.	Death-rate per Million.		1905.	
	1903.	1904.	Deaths.	Death-rate per Million.
1. Dalarnock, ...	4,463	4,698	178	3,602
2. Calton, ...	4,646	5,663	161	4,365
3. Mile-end, ...	4,424	4,331	190	4,389
4. Whitevale, ...	3,907	4,533	124	3,772
5. Dennistoun, ...	2,338	1,986	68	1,925
6. Springburn, ...	4,183	3,996	156	3,706
7. Cowlares, ...	3,224	3,626	113	3,652
8. Townhead, ...	3,676	4,243	174	4,478
9. Blackfriars, ...	5,544	5,956	117	5,269
10. Exchange, ...	4,032	2,681	8	3,779
11. Blythwood, ...	2,781	2,869	4	1,202
12. Broomielaw, ...	5,997	4,326	35	4,530
13. Anderston, ...	3,803	3,466	108	3,650
14. Sandyford, ...	3,058	3,585	99	3,857
15. Park, ...	2,445	1,784	28	1,119
16. Cowcaddens, ...	5,931	6,415	240	6,427
17. Woodside, ...	3,001	3,262	141	3,189
18. Hutchesontown, ...	5,099	5,740	167	4,124
19. Gorbals, ...	4,762	4,540	152	4,213
20. Kingston, ...	3,740	3,547	136	3,935
21. Govanhill, ...	2,723	3,246	87	2,577
22. Langside, ...	1,519	1,378	48	1,333
23. Pollokshields, ...	1,119	677	17	953
24. Kelvinside, ...	955	1,156	14	678
25. Maryhill, ...	3,958	4,073	121	3,028
— Institutions and Harbour, ...	...	...	167	...
CITY, ...	3,927	4,036	2,853	3,569

CHOLERA.

In the beginning of September, intimation was made of the occurrence of cholera in a Russian emigrant during his passage through Hamburg, and special attention was thereafter directed to the condition of persons and shipping arriving in the Clyde from Baltic and North Sea ports.

In our past experience, however, cholera has reached us not by the river, but by emigrants arriving by rail from ports from the East of Scotland or England, and, in consequence, it was arranged to have all such persons kept under supervision during their stay in Glasgow. The shipping companies provided them with medical attendance during their stay.

These persons reach Glasgow chiefly *via* Grangemouth, Leith, South Shields, Hull, and Grimsby.

PUERPERAL FEVER.—ERYSIPELAS.

In the following Table the cases of puerperal fever notified in each year since 1891, together with the case-rate per 1,000 births, and the death-rate from this cause and from erysipelas, are given:—

TABLE XXXIX.

Year.	PUERPERAL FEVER.			ERYSIPELAS.
	Cases Notified.	Case-rate per 1,000 Births.	Death-rate per Million Living.	Death-rate per Million Living.
1891	80	4.0	105	115
1892	63	2.8	64	84
1893	73	3.1	68	75
1894	64	2.8	51	83
1895	74	3.2	63	69
1896	105	4.4	79	55
1897	62	2.6	48	49
1898	71	2.9	52	40
1899	83	3.4	82	45
1900	78	3.2	78	32
1901	71	2.9	71	60
1902	90	3.6	51	51
1903	108	4.3	53	44
1904	89	3.6	53	53
1905	108	4.5	74	33

The death-rates above are based on data obtained from the Registrar-General's Reports.

UNCERTIFIED DEATHS AND DEATHS WITHOUT MEDICAL ATTENDANCE.

In Tables XL. and XLI. the total deaths occurring during the 10 years, 1891-00, and 1901-5, are stated with the number and proportion *uncertified* and *dying without medical attendance at all ages and under and over five years*, together with a comparison of the proportions as affecting legitimate and illegitimate children under 1 and 5 years respectively, and in Table VII. of Appendix B the numbers occurring in each class in the several wards are given. Appendix Table VIII. gives corresponding information regarding the deaths occurring among members of Friendly Societies.

Certification.—At all ages 2·1 per cent. of the deaths were uncertified and 1 per cent. had no medical attendance. Under 5 years, however, 3·0 per cent. were uncertified and 1·7 per cent. had no medical attendance. The greatest contrast is furnished by deaths occurring under 1 year. Among legitimate infants the proportion of these uncertified was 4·6 per cent., while among illegitimates it was 6·9 per cent. Of the legitimate children dying under 1 year 38·8 per cent. were insured, while among illegitimates the proportion is only 12·8 per cent.

In the subjoined figures a comparison is established between the proportion of deaths uncertified in 1904 and 1905:—

PROPORTION OF UNCERTIFIED DEATHS TO TOTAL DEATHS REGISTERED
IN 1904 AND 1905.

	Below 5 Years.		5 Years and Upwards.		All Ages.	
	1904.	1905.	1904.	1905.	1904.	1905.
Total deaths, ...	5,913	5,502	8,881	8,256	14,794	13,758
Not certified, ...	210	166	141	222	357	288
Percentage, ...	3·6	3·0	1·6	1·5	2·4	2·1

TABLE XL.
GLASGOW, 1905.—CERTIFICATION of DEATHS.

	10 Years. 1891-1900.	1901.	1902.	1903.	1904.	1905.
Total Deaths, ...	149,184	15,716	15,054	14,483	14,794	13,758
Of these Uncertified, ...	4,916	451	412	363	351	288
Died without Medical Attendance, ...	2,638	240	217	162	151	142
Deaths under 5 years, ...	62,350	6,390	5,364	5,816	5,913	5,502
Of these Uncertified, ...	3,027	274	244	228	210	166
Died without Medical Attendance, ...	1,738	163	138	116	108	93
Deaths above 5 years, ...	86,834	9,326	9,690	8,667	8,881	8,256
Of these Uncertified, ...	1,889	177	168	135	141	122
Died without Medical Attendance, ...	900	77	79	46	43	49
Percentage of Total Deaths Uncertified, ...	3·3	2·9	2·7	2·5	2·4	2·1
Percentage of Total Deaths which occurred without Medical Attendance, ... }	1·8	1·5	1·4	1·1	1·0	1·0
Percentage of Deaths under 5 years Uncertified, ...	4·9	4·3	4·5	3·9	3·6	3·0
Percentage of Deaths under 5 years which occurred without Medical Attendance, ... }	2·8	2·6	2·6	2·0	1·8	1·7
Percentage of Deaths above 5 years Uncertified, ...	2·2	1·9	1·7	1·6	1·6	1·5
Percentage of Deaths above 5 years which occurred without Medical Attendance, ... }	1·0	0·8	0·8	0·5	0·5	0·6

TABLE XLI.
GLASGOW, 1905.—COMPARATIVE CERTIFICATION of LEGITIMATE and ILLEGITIMATE CHILDREN.

	10 Years. 1891-1900.	1901.	1902.	1903.	1904.	1905.
Legitimate Deaths under 1 year, ...	30,304	3,203	2,800	3,116	3,173	3,161
Of these Uncertified, ...	1,853	193	174	167	143	144
Legitimate Deaths, 1—5 years, ...	26,066	2,614	2,063	2,109	2,206	2,340
Of these Uncertified, ...	476	41	28	23	30	22
Illegitimate Deaths under 1 year, ...	4,202	399	368	447	402	406
Of these Uncertified, ...	551	34	39	36	32	28
Illegitimate Deaths, 1—5 years, ...	1,778	174	133	144	132	130
Of these Uncertified, ...	147	6	3	2	5	2
Percentage Legitimate Deaths under 1 year Uncertified,	6·1	6·0	6·2	5·4	4·5	4·6
Percentage Legitimate Deaths, 1—5 years, Uncertified,	1·8	1·6	1·4	1·1	1·4	0·9
Percentage Illegitimate Deaths under 1 year Uncertified,	13·1	8·5	10·6	8·1	8·0	6·9
Percentage Illegitimate Deaths, 1—5 years, Uncertified,	8·3	3·4	2·3	1·4	3·8	0·3

TABLE XLII.

GLASGOW, 1905.—INSURANCE of LIVES in FRIENDLY SOCIETIES, with COMPARISON of INSURANCE
of LEGITIMATE and ILLEGITIMATE CHILDREN.

	10 Years. 1891-1900.	1901.	1902.	1903.	1904.	1905.
Total Deaths, ...	149,184	15,716	15,054	14,483	14,794	13,758
Of these Insured, ...	87,824	9,386	9,001	8,734	9,080	8,628
Deaths under 5 years, ...	62,350	6,390	5,364	5,816	5,913	5,502
Of these Insured, ...	33,333	3,405	2,747	2,993	3,148	3,023
Deaths above 5 years, ...	86,834	9,326	9,690	8,667	8,881	8,256
Of these Insured, ...	54,491	5,981	6,254	5,741	5,932	5,605
Legitimate Deaths under 1 year, ...	30,304	3,203	2,800	3,116	3,173	3,161
Of these Insured, ...	13,052	1,374	1,117	1,309	1,389	1,228
Illegitimate Deaths under 1 year, ...	4,202	399	368	447	402	406
Of these Insured, ...	434	50	40	57	44	52
Legitimate Deaths, 1—5 years, ...	26,066	2,614	2,063	2,109	2,206	2,340
Of these Insured, ...	19,232	1,931	1,540	1,570	1,662	1,698
Illegitimate Deaths, 1—5 years, ...	1,778	174	133	144	132	130
Of these Insured, ...	615	50	50	57	53	45
Percentage of Total Deaths Insured, ...	58·9	59·7	59·8	60·3	61·4	62·7
Do. Deaths under 5 years Insured, ...	53·5	53·3	51·2	51·5	53·3	54·9
Do. Deaths above 5 years do., ...	62·8	64·1	64·5	66·2	66·8	67·9
Do. Legitimate Deaths under 1 year Insured, ...	43·1	42·9	39·9	42·0	43·7	38·8
Do. Illegitimate Deaths under 1 year do., ...	10·3	12·5	10·9	12·7	10·9	12·8
Do. Legitimate Deaths, 1—5 years, Insured, ...	73·8	73·9	74·6	74·4	75·3	72·6
Do. Illegitimate Deaths, 1—5 years, do., ...	34·6	28·8	37·6	39·6	40·2	34·6

FOOD POISONING.

On the forenoon of 27th September the medical practitioner who was in attendance reported that he had been called the day previous (26th September) to the second engineer of the s.s. "Caldonie," of Nantes, then in Queen's Dock, for symptoms among which were cramping of the limbs, vomiting, copious diarrhoea, and ultimately profound collapse.

The ship arrived at Glasgow on the 21st September, was inspected at Greenock, and the crew reported well. No illness had occurred during the voyage. She left Alexandria on the 30th of August, called at and left Ergasteria on 6th September, and arrived at Algiers on the 11th September, where she only remained to refill her bunkers and obtain a supply of water. From Algiers she came direct to Glasgow.

History of Illnesses.—Three of the crew presented symptoms more or less similar in character, but greatly varying in intensity.

Case I.—The second engineer already referred to had been ashore for an hour or two on Saturday, 23rd September, feeling quite well. Shortly after his return to the ship he was suddenly seized with the symptoms above noted. In response to Dr. Whyte's notification he was visited on the 27th September, and removed in a state of profound collapse to the hospital on the same day.

Case II.—The cabin boy, aged 15, complained of headache on the 26th September, and on the forenoon of the 27th had some diarrhoea.

Case III.—On 29th September, on revisiting the ship, a fireman was found to be suffering from sickness and slight diarrhoea. All were removed to hospital for observation as their occurrence became known.

It was possible to exclude any general contamination of the water supply, because it was in general use by a crew numbering 28 persons; and it was also possible to exclude the ingestion of contaminated food by the first patient during his visit on shore just before he sickened, as the others who subsequently sickened were not with him, and one who was with him remained well. There remained the question of the accidental contamination of some small portion of the food used on board, in which case the illnesses would fall into line with many similar cases which are now on record as resulting from dust or other mechanical soiling with material containing certain micro-organisms. It is from this point of view satisfactory that Dr. Buchanan has been able to recover from the abdominal discharges of two of the patients—the engineer, whose illness proved fatal, and the cabin boy, in whom the symptoms were extremely mild—the bacillus of Gärtner, which has not infrequently now been recognised in a similar association with cases already on record.

There was no reason to suspect that a large portion of the food had become thus infected—it was in general use by the others of the crew—but we have been unable to ascertain the precise point at which the organism gained access.

The engineer's illness terminated fatally on the evening of his admission.

I append Dr. Buchanan's report—

As requested, I visited this ship along with Dr. Archibald on 27th September, and found the engineer in a state of collapse and suffering from profuse watery diarrhoea. The bowel discharge was collected in a pail, and was mixed with urine and vomited matter. It was a clear, yellowish fluid, showing numerous flakes of mucus, but not suggesting the rice-water stool of cholera.

Microscopic examination of the discharge showed a short Gram-negative bacillus in enormous numbers, to the exclusion of other species.

Cultures.—A series of test cultures for the presence of the cholera vibrio was at once instituted. On the following morning these failed to show any trace of this organism.

Further tests were also instituted with respect to the bacillus found so abundantly in the discharges, and these have resulted in proving this organism to be the bacillus of

Gartner. It is highly pathogenic, having killed a guinea-pig by intraperitoneal injection within eighteen hours. It is also agglutinated by the blood of the patient in a dilution of 1 in 50 within two hours.

The dejecta of the lad removed from this ship to Belvidere showed the presence also of the bacillus of Gartner. The lad's blood agglutinated the bacillus in a similar dilution within one hour.

The first patient having died in Belvidere, whither he was removed on 27th September, a *post-mortem* examination was made eighteen hours after death. This revealed the presence of acute gastro-enteritis, and the same short bacillus was found in smears from the intestines, spleen, and blood, and recovered from all these parts by cultures.

The ship's water was examined bacteriologically, but no trace of the bacillus of Gartner was discovered.

The illness may therefore be regarded as having been caused by the ingestion of some article of food contaminated by this bacillus.

RABIES.

During the year the police reported that 146 persons had been bitten by dogs, in seven of whom the injury inflicted was classified as "serious," and in 139 as of a trifling character. In the first quarter 26 per cent. of the cases occurred; in the second quarter 26 per cent.; in the third quarter 29 per cent.; while in the fourth quarter there were 19 per cent. The highest number (17) occurred in the month of July, and the lowest (7) in December.

In each case the condition of the animal was inquired into, and the absence of rabies ascertained.

ANTHRAX.

During the year, anthrax proved fatal to man under the circumstances related in the following report, and seven cases in animals were intimated under the Anthrax Order.

The case in the human subject is as follows:—

(*Extract from Minutes of Committee on Health.*)

February 8.—A death from wool-sorter's disease has occurred under circumstances which leave the precise source of infection in doubt at the moment. Moreover, it is the first case occurring among the community where the person affected was not directly associated with the more readily recognisable sources of infection—*e.g.*, animals dead of the disease, hair, &c. In the present instance the patient was employed as a paint grinder in a firm of white-lead manufacturers. His sickness began suddenly on the morning of Tuesday, 31st January; he was taken to the Western Infirmary on the evening of the same day, and died, I understand, early on the following morning.

The nature of the disease was only recognised on *post-mortem* examination, and the evidence present suggested, I understand, that the infection gained entrance in food or in ordinary deglutition.

The nature of the deceased's occupation ensured a more than usual cleanliness of the hands before eating, and what is known regarding the incubation period of anthrax, when taken in association with the day of the week when the symptoms in deceased began, tend to suggest that he obtained his infection in the interval between the Saturday afternoon and Monday morning which preceded the development of symptoms.

I have had occasion in former reports to point to the occasional detection of cases of anthrax among food animals as suggesting that the disease has some prevalence among dairy stock in this country, and if the occurrence in the present case can be reasonably shown to have any association with food, it may stimulate an enquiry into the extent to which this is present.

March 8.—In the report for the fortnight ending 8th February, reference was made to the death of a lead-worker from anthrax, and during the interval which has elapsed Dr. Currie has made a careful enquiry into the various sources from which the infection might have reached deceased. In the following somewhat minute detail of the various steps in the manufacture of the materials which he dealt with at his work,

all are found to have undergone a process with which the continued existence of the germ of anthrax in a virulent state is impossible. By excluding all these the element "food" comes into greater prominence as the probable source of infection. It has not been possible to trace the existence of anthrax in any of the farms at which enquiry was made, although in one several sheep had died of some unnamed disease. The following is Dr. Currie's report:—

Enquiry has been made into the death on 1st February, by intestinal anthrax, of W. F., residing at Kelvinside Avenue, and employed with a firm of local lead and colour manufacturers.

The surroundings of the deceased in his lodging, in particular his bedding and clothes, were scrutinised, with a negative result. The movements of the deceased before his death were ascertained with some precision—one period of some hours excepted—and his movements, as so ascertained, do not reveal any casual source of risk. Probability points rather to occupation and food—to occupation, because anthrax is notably an industrial disease; to food, because an affection of the intestines is readily associated with feeding.

The *occupation* of the deceased is described as the grinding of white lead in refined linseed oil. Investigation showed that in connection with this work the deceased was obvious to contact with certain classes of material which have, under varying conditions, been associated with outbreaks of anthrax. These substances are four in number—refined linseed oil, which is used in the process of grinding; spent bark of tan-yards, which is employed in the Dutch method for white lead; tallow, with which the deceased was in the habit of lubricating his machine; and waste, with which it was his custom to clean his hands.

Linseed Oil.—The linseed from which crude oil is expressed forms oil-cake for the feeding of oxen. This oil-cake has been blamed as a cause of anthrax among cattle, and, if this charge be correct, the oil from infectious cake is liable on occasion to carry the anthrax spore. The evidence, however, which inculpates the cake is so inconclusive that the presence of the spore in the crude oil is problematical under any conditions. In addition to this, it will be noted that the deceased used refined oil only, and the process of refining exposes the oil for many hours to a temperature which is fatal to the anthrax spore in five minutes. This circumstance alone excludes linseed oil as a source of infection.

Spent Bark.—It is true that infection by anthrax has arisen during the process of the tanner's industry, and also from the refuse of tan-works; but cases among workmen which have arisen during the process have occurred by contact with infective hides previous to their immersion in the lime pits, and cases among cattle, for the most part, which have followed exposure to the refuse of tan-works, are to be traced to the effluent from the soaks in which dry foreign hides receive their preliminary softening. Authorities in this country are agreed that the liming process destroys the infective property of diseased hides, and precludes the presence of the anthrax spore in spent bark as it leaves the tan-pits. This consideration eliminates spent bark as a source of infection.

Tallow.—The tallow in question was reported as prepared from the fat of anthrax-free animals, and the process of rendering was one which no anthrax spore could survive. Such tallow was not capable of carrying this infection.

Waste.—Certain materials of this class are associated with the appearance of anthrax, but the waste which was handled by the deceased is without admixture of hair or wool, is composed of cotton and jute, and may, therefore, be disregarded for the purposes of this enquiry as a carrier of anthrax infection.

Thus it becomes apparent that these four substances cannot be considered probable agents of this death, and there is additional reason for their rejection in the absence of reported anthrax at the works from which they were derived.

The *food* of the deceased, in the wider sense of the term, did not differ in a noteworthy degree from the food of his associates.

An enquiry into the milk supply had a negative result; anthrax was not known on the farms in question. Certain articles of diet—for example, tinned salmon derived from Alaska—may be dismissed without further comment.

It was ascertained, however, that at the time of his infection, and in common with others, the deceased had consumed a certain pie and part of a certain steak; but the possibility of his having eaten also other food of this class could not be excluded. *Animal food* under this category is the probable vehicle by which the anthrax spore was conveyed into the body of the deceased.

Meat.—This pie and this steak were traced through Bellgrove Meat Market to possible sources. Information received at Bellgrove was founded with some precision, but the retail butchers appeared to experience a difficulty in determining the immediate source of their meat. The details given by the persons concerned permit the statement that the meat consumed by the deceased had its possible origin, either in wedders brought from Cupar-Fife; in oxen shipped from Newport, News., Va.; or in other imported cattle from an unknown quarter. The carcasses of these animals had all been passed by the inspectors. Recent anthrax is not reported at Cupar-Fife. Indeed, the problem as to the mechanism by which anthrax-infected meat could have gained access to the deceased presents certain elements of obscurity which are not unknown in the history of sporadic cases. It may be that other meat was in the pie than that of which information was secured. It may be that deceased, during the period when his movements are uncertain, consumed meat of which no record is available. But, whatever the channel by which the infected meat passed to the deceased, the exclusion of casual and trade infections lends additional probability to the suggestion that an anthrax-containing carcass was used for food in Glasgow at the time when this man contracted his fatal illness.

That many should partake of the dangerous meat and only one should die is not out of accord with the life-history of the anthrax organism. The organism has two forms—the bacillus and the spore. In the interior of infected flesh it exists in the form of the bacillus, and as the bacillus it is readily destroyed by the gastric juice. So much is this the case that a whole anthrax carcass was recently sold for food in an English city before its hurtful character became known, and yet no deaths from anthrax were reported among those who ate the flesh. The anthrax spore, on the other hand, is one of the most resistant of living things, and is unaffected by the digestive act. If, therefore, a fortuitous circumstance should favour local spore formation in an infective piece of meat, and if this local area of sporulation should escape the full incidence of heat in the process of cooking, a condition is established in the meat by which one consumer may absorb a fatal charge of spores, while others who share the flesh with him escape unharmed. Under such a condition this isolated death may have occurred.

The *investigation* into the death of this man attaches suspicion to meat of unknown origin consumed by him, for these reasons—

- (1) Enquiry into casual infection is negative.
- (2) Investigation of detail eliminates industrial infection.
- (3) The situation of the disease in the intestine points to the food as a possible agent.
- (4) Of the foods considered, meat is the most likely to contain the infective organism.
- (5) The isolated character of the death is compatible with meat infection.

CONTAGIOUS DISEASES (ANIMALS) ACT, 1878, ANTHRAX ORDER.

The following cases of anthrax in animals were intimated to me by Principal M'Call during the year:—

1. On 8th March the carcass of a cow dead of anthrax had been found on the premises of a fat-boiler, to whose premises it had been removed after death. The case had occurred in a milk herd on a farm in Lanarkshire, near Maryhill. The room in which the carcass had been hung, the implements used, and the waggon which brought it were all disinfected. Disinfection was also carried out at the farm in that portion associated with the diseased animal.

2. On 15th March a second cow from the same herd was similarly dealt with.

3. On 8th April the carcass of a bull infected with anthrax was received at Moore Street Abattoir from a farm in Lanarkshire. The carcass was cremated in the Corporation destructor, Arthur Street, and the County Authorities notified.

4. On the 11th April I was informed of a further case of anthrax in the carcass of a cow which was sent to a horse slaughter-house from a farm in Dumbartonshire. The carcass was destroyed by boiling down in digesters at the slaughter-house, and the usual precautions taken.

5. On 4th May a case was reported to me as occurring in a cow which was brought dead to a horse slaughter-house from a farm in Lanarkshire. The carcase was destroyed in the usual way, and intimation was sent to the Inspector of the Local Authority concerned.

6. During the month of November, Principal M'Call informed me that the dressed carcase of a cow from Armagh was detected at Moore Street Slaughter-house, and condemned as being affected with anthrax.

7. On the 7th December, Principal M'Call similarly intimated the death of a horse from anthrax in the stable of a hirer in Glasgow. I am yet without information as to the probable source of infection in this latter case, although food affords a possible vehicle. The occurrence of the disease herein is a subject of the gravest concern, as possibly indicating the extension of the disease to other than the food animals of this country.

GLANDERS IN THE HUMAN SUBJECT.

Relatively few cases of glanders in the human subject in Glasgow are on record, and the following notes may be of use for subsequent reference:—

(1) 1892.—On 20th September of this year a foreman in the Whitevale stables of the Glasgow Tramways Company sickened of glanders, and died on 3rd October following. The lungs were ultimately affected, and a few farcy buds in the region of the mouth and nostrils at first suggested pneumonia. There were infected animals in the stables. This is believed to be the third case on record, the two former having occurred many years previously.

(2) 1903 (February).—The patient in this case was a coal dealer residing in the Western District of the city, and occupying stables in which glanders had been detected among the horses on 31st December, 1902; 10th, 17th, 19th, and 31st January, and 2nd and 7th February, 1903. His illness began about the 8th, and death occurred on 25th, February.

(3) 1903 (June).—The owner of a horse, who had attended a horse sale at Perth, but was not otherwise known to have been in contact with probable sources of infection from glanders, sickened of the disease on 25th June, and died on 12th July, 1903.

(4) 1905.—The following is the record:—

(Extract from Minute of Committee on Health, of date 22nd February, 1905.)

Patient was employed as a stableman with a firm of contractors, and resided in the Northern District of the city. His illness began on Sunday, 5th February, with headache, but he went to work at breakfast-time on the following morning, and continued until the evening of Tuesday, 7th February, when he stopped work altogether. Until Saturday, 18th current, his illness was, I understand, characterised only by fever and extreme prostration, there being a total absence of evidence suggestive of the true nature of the disease. On that evening, however, certain papules appeared, which ultimately became vesicular, and when I saw him on the 20th February farcy buds were present on the legs, arms, and face, while on the head several nodules were in process of formation. Patient died on the morning of 21st current. The nature of his work brought at once into prominence the question of disease in the stables in which he was employed. Patient's particular occupation was to assist in preparing the horses' food and feeding them, so that in the course of several days he may have been brought into contact with all the horses in the stable in which he was employed.

On examination of the stud last night, however, Principal M'Call found no clinical evidence of present disease, but I am unaware whether changes have taken place in the stud since patient's illness began. In connection with this it is important to note the terms of Article I. of the Glanders or Farcy Order of 1894—"For the purposes of this Order, 'disease' means 'glanders,' and includes that form of glanders which is commonly known as 'farcy' . . . and 'diseased' or 'suspected' means 'affected with' or 'suspected of being infected with' glanders."

The fatal issue of the disease in the stableman may, I think, in the absence of any other likely sources of infection, emphasise the need for considering whether the interpretation which is presently placed upon the phrase "suspected of being affected with glanders" covers all possible conditions of infection. In any case, here is an

illustration of the disease having attacked and caused the death of a stable attendant while as yet there is no record of the disease being present among the animals themselves. It becomes of the first importance to know the facts accurately, and, pending this, it may seem desirable to the committee that some of their members should confer with the Local Authority vested with the administration of the Diseases of Animals Acts, in order specially to consider the meaning attached to the phrase in the Order, "suspected with being affected with glanders." In this suggestion Principal M'Call, with whom I have been in communication, concurs.

Subsequent enquiry by Principal M'Call disclosed the fact that from one or other of several stables occupied by deceased's employer, 31 dead horses had been removed to a knackery, and 2 others had been killed, between 1st January and the date when the above incident occurred.

BACTERIOLOGICAL LABORATORY.

During the year, 2,775 specimens of morbid products were forwarded to the laboratory, as compared with 2,791 in 1904.. It is to be noted, however, that the total number of specimens was curtailed owing to the seizure and destruction of 32 packets by the Postal Authorities. The specimens were submitted by 351 medical practitioners. Of these, 306 (accounting for 2,570 specimens) are in general practice within the municipal boundaries, 13 (accounting for 26 specimens) were resident outwith the boundaries, 27 (accounting for 85 specimens) were acting for public institutions, and 5 (accounting for 94 specimens) were connected with the Health Department.

It thus appears that 72 per cent. of the medical practitioners engaged in general practice within the City availed themselves of the laboratory for bacteriological diagnosis during the year, and the average number of specimens received from each practitioner was 8·4, compared with 7·6 in 1904.

Dr. Buchanan tabulates the results of these examinations in the following manner, the figures for 1903 and 1904 being introduced for comparison :—

SPECIMENS SUBMITTED BY MEDICAL PRACTITIONERS FOR BACTERIOLOGICAL EXAMINATION DURING 1905, WITH COMPARISON FOR YEARS 1903 AND 1904.

	1903.			1904.			1905.		
	PERCENTAGE.		Total No.	PERCENTAGE.		Total No.	PERCENTAGE.		Total No.
	Posi- tive.	Nega- tive.		Posi- tive.	Nega- tive.		Posi- tive.	Nega- tive.	
Blood or Serum for Widal's Test,	46·8	53·1	1,014	36·2	63·8	853	26·7	73·3	771
Swabs from Throat and Nose for Diphtheria, -	34·8	65·2	997	34·3	65·7	928	26·7	73·3	980
Sputum for Tuber- culosis, - -	32·7	67·3	932	32·4	67·6	1,010	35·3	64·7	1,024
	38·3	61·7	2,943	34·2	65·8	2,791	29·9	70·1	2775*

* Thirty-two packets were destroyed by the Postal Authorities on account, as alleged, of having been posted contrary to the Regulations of the Post-Office, as laid down at page 20 of the Post-Office Guide. Of these, four related to Diphtheria, four to Enteric Fever, and twenty-four to Tuberculosis.

TABLE SHOWING THE TOTAL NUMBER OF SPECIMENS FROM SUSPECTED CASES OF DIPHtheria, ENTERIC FEVER, AND TUBERCULOSIS SENT TO THE LABORATORY FOR BACTERIOLOGICAL DIAGNOSIS BY THE MEDICAL PRACTITIONERS OF GLASGOW, SINCE THE INAUGURATION OF THIS WORK ON 1ST JANUARY, 1900.

Year.	Diphtheria.	Enteric Fever.	Tuberculosis.	Total.
1900, ...	353	543*	351	1,247
1901, ...	438	1,048	565	2,051
1902, ...	712	807	847	2,366
1903, ...	997	1,014	932	2,943
1904, ...	928	853	1,010	2,791
1905, ...	980	771	1,024	2,775
Totals, ...	4,408	5,036	4,729	14,173

The number of medical practitioners sending specimens for examination for one or other of the diseases indicated in the above table is as follows:—

	1901.	1902.	1903.	1904.	1905.
Widal's Test, ...	218	213	220	220	196
Swabs (Throat and Nose), ...	140	170	226	219	227
Sputa, ...	134	163	214	222	210
Total,*	492	546	660	661	633

* Many practitioners send specimens of more than one kind, and the actual number using the Laboratory equipment is as follows:—

* 1901—233. 1902—304. 1903—360. 1904—369. 1905—340.

EXAMINATION OF RATS FOR PLAGUE DURING 1905.

The record of this work shows a total for the year of 663 examinations, as against 2,252 in 1904 and 2,270 in 1903. In the first part of the year (January to April) the rats were taken from shipboard only; thereafter, they were also taken from those parts of the City in which plague had previously existed. The following Table gives the numbers examined in relation to places from which they were obtained, and the result:—

Number of Rats submitted for Examination.				Plague Infected.
From the City.	From Shipboard.	From Docks.	Total.	
284	350	29	663	...

EXAMINATION OF MILK FOR TUBERCULOSIS.

During the year samples of milk obtained from 9 cows in City byres were submitted for examination, with the view of detecting the organism of tubercle. In one the result was positive. The milk of 2 cows in country byres was also examined, with negative results.

EXAMINATION OF MILK FOR BACILLUS TUBERCULOSIS DURING 1905.

					Positive.	Negative.	Total.
Town Milk, ...	...	...	...	...	1	8	9
Country Milk, ...	...	...	...	...	—	2	2
Total, ...	...	...	...	...	1	10	11

In addition to the foregoing, Dr. Buchanan supplied the following record of work done in the Laboratory during the year:—

OTHER INVESTIGATIONS.

In addition to the specimens above tabulated, the following were investigated for the Health Department, Medical Practitioners within the City, the Veterinary Surgeon, the Corporation Water Department, and the Port Sanitary Authority:—

Health Department—

A. Medical Officer of Health—

Milk, ...	...	...	...	...	...	...	21
Water, ...	...	...	...	...	...	...	11
Dust (Tuberculosis), ...	...	...	...	...	...	...	14
Foodstuffs, Clothing, Bedding, &c., for Anthrax, ...	...	...	...	...	...	...	14
Food poisoning, ...	...	...	...	...	...	...	2
Diphtheria in Hospital, ...	...	...	...	...	...	...	38
Urine (Enteric Fever), ...	...	...	...	...	...	...	2
Bile (Enteric Fever), ...	...	...	...	...	...	...	1
Glanders in Man, ...	...	...	...	...	...	...	4
Shellfish (Enteric Fever), ...	...	...	...	...	...	...	156
Fish, ...	...	...	...	...	...	...	4
Disinfectants, ...	...	...	...	...	...	...	7
Post-mortem examinations—							
Glanders in Man, ...	...	...	...	...	...	1	
Septicæmia, ...	...	...	...	...	...	1	
						—	2
							276

B. Sanitary Inspector—

Milk, ...	...	...	...	...	...	...	2
Fish, ...	...	...	...	...	...	...	1
Disinfectants, ...	...	...	...	...	...	...	6
House Insects, ...	...	...	...	...	...	...	3
						—	12

C. Hospitals—

Diphtheria, ...	...	...	...	...	...	...	223
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D. Infants' Milk Dépôt, ...	...	...	...	...	...	...	351
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Medical Practitioners—

Miscellaneous Specimens relating to Tuberculosis, Pneumonia, Influenza, Tetanus, Enteric Fever, Sepsis, and Coccidiosis, ...	...	...	...	...	...	...	152
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Veterinary Surgeon—

Milk from Cows with Disease of the Udder, ...	...	...	...	...	...	...	11
Anthrax Carcase, ...	...	...	...	...	...	...	1
						—	12

Water Department—

Water, ...	...	...	...	...	...	...	2
Insect Larvæ, ...	...	...	...	...	...	...	1
						—	3

Port Sanitary Authority—

Suspected Plague, ...	...	...	...	...	...	...	4
Suspected Cholera, ...	...	...	...	...	...	...	1
Post-mortem examination of case of suspected Cholera, ...	...	...	...	...	...	...	1
Ships' Drinking Water, ...	...	...	...	...	...	...	2
						—	8

Total, ... 1,037

MEAT INSPECTION.

REPORT BY THE MEDICAL OFFICER ON THE IMPORTATION
OF BONELESS MEAT.

This enquiry was undertaken in response to an instruction of the Local Government Board (which was communicated to me by the Clerk to the Local Authority on 28th November last) that he should forward reports thereon by the Medical Officer and Veterinary Surgeon of the Corporation.

The instruction would appear to have emerged from a communication addressed to the Board by the Board of Agriculture and Fisheries, of date 10th November, enclosing copy of—

- (1) A letter signed by the Secretary of the Edinburgh and Leith Dairymen's Association; and
- (2) Extract from a report by the "Market Reporter in Edinburgh" of the Board of Agriculture.

In each case the issue raised is the same, although variously expressed.

The letter of the Dairymen's Association suggests that as "each package" of boneless meat consigned to this country by foreign exporters contains "numerous pieces, it consequently cannot be submitted to such inspection as the official inspectors give to home-grown meat," while the Market Reporter adds that "there is no good ground for assuming that the thousands of tons of this class of meat which are poured into the country (and which, as I have pointed out, defies inspection) is free from tubercle or the bacilli of any other known cattle disease." In both documents, collateral questions are raised regarding the tendency of this imported meat to depress—by reason of its low price—that derived from home-grown animals. This phase of the question is, however, incidental only to the present enquiry, and need not be further referred to here.

Object of Enquiry.—This may be considered in the following categories:—

- (1) Is there reason for believing that boneless meat is subjected to any efficient system of inspection at the time of slaughter and preparation?
- (2) Does it *de facto* arrive in this country in a wholesome condition?

If we assume for the moment that this meat is inspected at slaughter, the second question may be disposed of first, as local knowledge of its condition on arrival is readily obtainable.

In 1895 the late Medical Officer of the Local Government Board (England), Sir Richard Thorne, addressed to the present Reporter a query, which had been formulated by the Maltese Public Health Department, whether any information could be obtained "as to the relative power of resistance to decomposition which experience shows frozen meat to possess when exposed for sale as compared with ordinary butchers' meat," and the enquiry then undertaken resulted in the following report:—

Frozen Meat.

I have had an enquiry made among some of the butchers most largely engaged in the wholesale and retail of this class of meat, and find the opinion entertained, quite unanimously, that frozen meat keeps better than meat which has not been subjected to this treatment. The butchers find, for instance, that during sultry weather this meat remains longer free from putrefaction when exposed under similar conditions with meat not frozen. They state, however, that it becomes discoloured soon after thawing, although it remains sweet for a longer time than ordinary butcher meat. This discoloration is attributed to the "meat juices getting into the fat," by which I think it is meant that the capillaries and the lymph channels get ruptured in the process of freezing, and their contents, when the meat is thawed, permeate and discolour the fat. "*Chilled*," as distinguished from "frozen" meat, is said by the butchers to possess similar advantages over butcher meat, but to a lesser degree. (From letter to Dr. Thorne, 21st December, 1895.)

This still, I believe, represents the experience of the meat trader and of the public, and is in consonance with general knowledge that low temperatures inhibit bacterial action.

VOLUME OF TRAFFIC IN BONELESS MEAT REACHING GLASGOW, COUNTRY OF ORIGIN, AND QUESTION OF INSPECTION AT TIME OF SLAUGHTER.

Sources of Information.—These latter may be stated shortly to include shipping agents and meat importers (the latter being frequently the agents in this country of the foreign meat exporters); the regulations for the inspection of live stock and their products issued by the United States Department of Agriculture; and such tags, labels, or stamps as were found attached or adherent to particular consignments, indicating that they had been inspected during preparation for exportation.

This portion of the enquiry was undertaken by Dr. Wright, who collected the details on which the following description is based:—

The United States, New Zealand, and the Argentine Republic would seem to be the chief if not the only countries from which boneless meat is imported to this country, and the quantities severally consigned by them to Glasgow are stated hereafter when information could be obtained.

Trade with the United States.—There are six chief exporters from the United States, four of them forming what is known to the trade as the “Big four American Combines”—

1. Armour,	...	Glasgow Agents—Messrs. Nelson Bros., Meat Market.
2. Morris,	...	„ Mr. Morris, „
3. Hammond,	...	„ Mr. Irwin, „
4. Swift, ...	...	„ Mr. R. Scott, „
5. Swatschild & Sulzberger,	„	„ Mr. Perrit, „
6. Cudahy,	...	„ Messrs. Elliot & Hetherington, Meat Market.

These firms have their headquarters at Chicago, except Cudahy, whose headquarters are at Omaha.

Their abattoirs, which include packing-houses, are situated in—

New York,	Omaha,
Chicago,	St. Joseph,
Kansas City,	St. Paul (Minneapolis).
St. Louis,	Fort Worth (Texas).

To these abattoirs the cattle are brought by train from the ranches, and, before killing, they are inspected by the Veterinary Surgeons of the Department of Agriculture. The inspection is repeated during slaughter and dressing (see U.S.A. Regulations, Nos. 5 and 6, a copy of which accompanies this report). It is stated that inspection in the United States is very rigorous, and that much more meat is condemned than is usual in this country. Each slaughter-house has an official number by which its inspected products are subsequently known (U.S.A. Regulations, No. 3). After slaughter, the carcasses are chilled to 35° F. (during both summer and winter), and thereafter cut up into portions, shoulders, &c. The subsequent destination of the meat (*i.e.*, whether it is intended for home consumption or exportation) determines whether it is thereafter to be kept “chilled” only or exposed to temperatures at or below freezing point. The meat which goes to supply the trade in “boneless meat” is cut from those carcasses, and packed in boxes containing 56 lbs. or 112 lbs. before the temperature is reduced to freezing point. It is thereafter conveyed by rail in specially constructed refrigerating tanks to the ports on the eastern seaboard, and shipped to London or Liverpool, whence the Glasgow consignments are forwarded by rail. During sea transit the boxes are stored in the

Dr. Wright inspected several boxes of this meat on 8th December, and these, when opened, though soft, appeared wholesome and fit for human consumption. The boxes contained portions of various sizes and trimmings. Large and small pieces are apparently not separated out into different boxes as is the case with the States consignments. It is said that the same prices obtain (3d. to 5d. per lb. as sold in the market) as for the United States meat, and it is used for the same purposes.

Effort is being made to obtain a copy of the Regulations issued by the Board of Agriculture of the New Zealand Government. That such inspection does actually take place is indicated by a stamp, measuring about $2\frac{1}{2}$ inches square, with the letters "E.R." on either side of a crown, which is impressed on each box of boneless meat, and bears the place of inspection and the signature of the veterinary inspector. In the accompanying illustration, which was cut from one of these boxes, it would appear that the meat inspection was in this case carried out at Dunedin, New Zealand, by H. Sawbell, veterinary surgeon. (Enclosure No. 4.)

Trade with the Argentine Republic.—This trade is principally carried on by the River Plate Fresh Meat Company, 73 Robertson Street, Glasgow, and the Sansinena Frozen Meat Company, Long Lane, London, E.C., of which latter firm Messrs. Hill Bros., Meat Market, Glasgow, are the agents for Scotland.

The River Plate Fresh Meat Company have only one packing-house or factory, and that is situated in Campana on the coast. They have no ranches associated with the station, and although the Company possesses a small estancia twenty to thirty miles from the factory or "station," their chief supply of live stock is obtained from outside breeders. All meat, which is finally frozen, passes first through the process of chilling, during which the temperature is gradually brought down to 35° F. The annual output is about 500 tons. About 10 tons per month arrives in Glasgow direct in the steamers of the Company, and is stored in Glasgow and Edinburgh. These steamers are specially constructed for the trade, being equipped with refrigerators, in which the meat is kept frozen during the voyage. It is made up in cases and bags—the case containing 112 lbs. and the bag 56 lbs.—and leaves their stores in a frozen state. The retail butcher usually only orders as much as he requires for the day at one time. The price obtained is, as with the States and New Zealand, 3d. to 5d. per lb. The chief trade with Argentine Republic in boneless meat is from November to May.

It is said that Argentina firms pay large prices for the stock cattle from this country for breeding purposes, as was done by the United States some years ago, and it is foretold that their trade will soon eclipse that of the United States, where the home consumpt is very great.

Inspection in the Argentina.—The inspection of animals for slaughter in the Argentine Republic is under the direction of the Division de Ganaderia (Board of Agriculture), which issues a code of regulations to be observed by the inspectors appointed both by themselves and by certain municipalities, such, for instance, as Liniers and Rosario. The Consul-General of the Republic in Scotland, Señor Baldomero F. Gayan, has been good enough to favour me with a verbal translation of certain of these regulations, of which the following is a summary:—

Article 22.—Every establishment or factory concerned with the preparation of animal products for international commerce, or for intra-provincial or home consumption, is subject to inspection by the Veterinary Surgeon of the Ganaderia (Board of Agriculture). This applies to factories dealing with salted, chilled, or preserved meat.

Article 23 provides that all animal products must be kept under conditions which comply with the structural requirements (in respect of hygiene) of the Board of Agriculture.

Article 24 provides for the appointment of Veterinary Inspectors by the Board of Agriculture, and ensures—

- (a) That these Inspectors be present in the abattoirs during slaughter and dressing of carcases, and no animal or carcase which does not bear evidence of inspection can be received by the superintendent of any market or abattoir.
- (b) That the hours of slaughter be duly notified to the Inspector, and that no animal be slaughtered without previous inspection.
- (c) That, in order to assist in the recognition of animals or of carcases or portions of carcases selected for destruction, the Inspectors are required to observe the regulations prescribed in certain sub-sections of *Article 21*, and which are as follows :—
 - (a) In the markets for animals destined for slaughter, vigilance must be exercised by the Veterinary Inspectors of the Board of Agriculture.
 - (b) In the markets for live stock and in the slaughter-houses of Liniers and Rosario, the inspections will be conducted by the municipal Veterinary Inspectors, who, however, are to act under the direction of the Board of Agriculture with respect to the application, interpretation, and execution of the regulations.
 - (c) Animals suffering or suspected to be suffering from an infectious disease are prevented from being sold.
 - (d) The Veterinary Inspectors must thoroughly inspect the animals in the slaughter-house before permitting them to be killed, and every product of an abattoir is to be marked by the Veterinary Inspectors.
 - (e) The Veterinary Inspectors of the slaughter-houses must make a thorough inspection of the carcases of the killed animals, and permit no carcase of any animal which is attacked or suspected of having suffered from an infectious disease to be utilised.
 - (f) That certain diseases will lead to the seizure of the whole carcase, such as carbuncle, tuberculosis, pneumonia, inflammatory diseases of lung, peritoneum, or intestines; and, further, that animals suffering from emaciation or thinness, and cannot be said to have healthy flesh, must be seized.

Another article (140) provides that every establishment for animal products, such as meat from the refrigerators, or salted, or otherwise preserved, when intended for exportation to countries which demand the sanitary inspection of the same, or to any other country, must observe the same rules of cleanliness and general hygiene as are required to be observed in connection with animals slaughtered for home use.

Here again, if the inspection is carried out according to these regulations, it is to be regarded as efficient.

There appears to be no trade in boneless meat with Australia or Canada.

Offal.—This is a trade term, and includes everything within the skeleton of the carcase, *i.e.*, heart, lungs, kidneys, spleen, intestines, and tongue and fillet. There appears to be no demand for any of the internal organs, other than kidneys, in Glasgow, and butchers are compelled to send them to England for sale.

SUMMARY.

From the foregoing, it would appear that the answer to the questions contained on page 126 are as follows :—

- (1) That regulations exist in the United States, New Zealand, and Argentine Republic for the inspection of animals destined for export; and
- (2) That large quantities of boneless meat arrive in this country in a wholesome condition.

To press the first conclusion towards an assertion that, because a good code of regulations for inspection exists, it is always and everywhere applied in a rigorous fashion, is, of course, impossible. Moreover, some doubt arises as to the position of boneless meat in commerce, when it is remembered that the price it fetches in the markets of this country is less than that of unboned meat imported as sides or quarters in a chilled or frozen condition. Exporters are not likely to take extra trouble for less remuneration, and the boning of meat implies more trouble; nor is the equivalent of the reduced price which it fetches quite recouped by the reduction in freight. The difference, in fact, would appear to be explicable only in either of two ways—

- (a) The portions sent over as boneless meat are the less valuable cuts (under cuts, bull beef, &c.), from the carcasses of quite healthy and well-fed animals, such, for instance, as I understand are pretty well recognised in this country among home-grown animals; or
- (b) Boneless meat is obtained originally from carcasses which do not yield first-class meat—by reason of emaciation, for example.

One butcher of large experience holds alternative (a) very strongly, but I feel myself without sufficiently detailed information to urge either view as the more likely. Indeed, information from eye-witnesses as to the actual practice of meat inspectors in these countries is desirable.

Accompanying this report are the following illustrations:—

- (1) Regulations for the inspection of live stock, issued by the Department of Agriculture, U.S.A., dated 27th June, 1904.
- (2) Amendment No. 1 to the foregoing, dated 6th April, 1905.
- (3) U.S.A. Department of Agriculture, leaflet E 7,178,117, removed from box of boneless meat.
- (4) Piece of wood cut from box containing frozen meat from New Zealand, and bearing stamp of inspection.

(Signed) A. K. CHALMERS.

Sanitary Chambers,
Glasgow, 22nd December, 1905.

DAIRIES, COWSHEDS, AND MILKSHOPS ORDER, 1899.

The number of persons registered during 1905, under Section 6 (1) of the above Order, was 81; and the number of cattle kept for the production of milk in byres in Glasgow may be stated at 842, although this is subject to some fluctuation throughout the year.

The following Table* contains the results of the veterinary inspection of milk animals stalled within the City byres during the year:—

	Total Number Affected.	Animals Removed or Destroyed.	Number from which the Milk was Destroyed.
UDDER DISEASES—			
Mastitis (Tubercular), - - - - -			
„ (Acute or Chronic), - - - - -			
OTHER DISEASES AFFECTING THE MILK—			
Tuberculosis (General), - - - - -			
Gastritis, - - - - -			
Bronchitis, - - - - -			
Part. Apoplexy, - - - - -			
Stomach Derangement, - - - - -			

* At the time of going to press this information was not forthcoming.

HOSPITALS AND RECEPTION-HOUSES.

(H) AN ACCOUNT OF THE HOSPITAL ACCOMMODATION AVAILABLE FOR PERSONS SUFFERING FROM INFECTIOUS DISEASE (INCLUDING THE MEANS PROVIDED FOR THE CONVEYANCE OF SUCH PERSONS), AND OF THE HOUSES OF RECEPTION, WITH OBSERVATIONS ON THE FURNISHING, MAINTENANCE, ADMINISTRATION, AND ADEQUACY OF SUCH ACCOMMODATION, &c.

(a) *Hospitals*.—Table IX. of Appendix B contains a statement of the beds available for epidemic disease for the several years.

(b) *Reception-Houses*.—During the year, 317 contacts with the diseases shown in the following Table were accommodated:—

GLASGOW, 1905.—RETURN OF PERSONS ADMITTED TO CITY RECEPTION-HOUSES.

Diseases.	Weaver Street.	South York Street.	Total.
Smallpox, ...	...	46	46
Typhus, ...	91	84	175
Enteric Fever, ...	29	25	54
Scarlet „	...	3	3
Others, ...	16	23	39
Total, ...	136	181	317

VERMINOUS CHILDREN.

10th May.—On 3rd current three children, M., A., and J., aged $10\frac{5}{12}$, 8, and 5 years respectively, were taken to the reception-house, South York Street, on account of their verminous condition. No elder members of the family accompanied the children, they being taken direct from school. The cleaning had to be undertaken by the matron and maids at reception-house. At the time these children were reported as verminous (18th April) the reception-house was empty, but when the children arrived (3rd May) it was occupied by typhus and enteric contacts. One of the typhus contacts has since been removed suffering from that disease.

To prevent mixing, the verminous children required to be kept in bed during the time they were in the reception-house.

The following is the matron's report:—

“In the boy M., his body was in a fairly clean condition, but he suffered from pruritis; his clothes were dirty and his head verminous; on his shirt a few vermin were found.

“A. and J. were in a filthy condition—their clothing very dirty, and, along with their heads and bodies, covered with vermin.

“All were stripped, bathed, &c., and kept in bed in one of the annexes until their clothing was returned from Belvidere Wash-house at 5 p.m. The children were then conveyed home.”

(Extract from Minute No. 31, p. 1973, of date 14th June, 1905.)

During the fortnight two children from one family and one from another, both residing in the Northern District of the city, were admitted to Weaver Street Reception-house under the following circumstances, so far as I am acquainted with them:—

The children were admitted on Tuesday, 6th instant, at 10.35 a.m., and returned to their homes by the District Inspector at 5.30 in the evening. There were measles contacts in the house at the time, so that, on being undressed and bathed and their heads treated, the verminous children had to be kept in bed while their clothing was sent to the washing-house at Belvidere for disinfection and washing.

The matron observes that their heads could not be freed from nits; indeed, shaving alone is efficacious where the disease is pronounced.

Social Condition.

1. It is noted that the father of the child D. is a widower, the family consisting of the boy referred to and two others, one of whom resides with a grandmother. D. is a moulder and said to earn £2 per week, and lives in a room with two children at William Street, Cowcaddens.

2. The two children named S. resided in Castle Street. They occupy, with their father, whose wife is at present under treatment at Stobhill, a room and kitchen, and the house is dirtily kept. The father is a blacksmith, and said to be a steady worker.

If the above information is correct, it will be observed that in neither case can poverty be pleaded as an excuse for the condition in which the children were found.

REMOVALS BY PUBLIC CONVEYANCE OF PERSONS DEAD OF INFECTIOUS DISEASE
(GLASGOW POLICE (AMENDMENT) ACT, 1890, SEC. 11).

Eight permits were granted for the removal by rail or steamer of the bodies of persons who had died from infectious disease.

INTERMENTS IN CLOSED BURYING-GROUNDS.

Seven permits for interment in the closed burying-grounds of the City were granted during the year.

FRESH-AIR FORTNIGHT.

The lists of the children to be sent to the Fresh-air Fortnight Homes were, as usual, submitted by the convener of that organisation for inspection, and those children residing in infected tenements were refused for the time being. The homes of all children admitted to Eastpark Cottage Homes for Infirm Children have also been visited and reported on, as were also the homes of boys belonging to Glasgow granted leave of absence from the training ship "Empress."

SECTION III.

PORT LOCAL AUTHORITY.

PORT OF GLASGOW.

REPORT OF WORK AT BOARDING STATION, PRINCES PIER, GREENOCK, 1905.

Dr. Wilson has prepared the following report on the work carried out at the Boarding Station at Greenock:—

To give a summary of the work done at the Boarding Station for the past year, and to make the statistics connected therewith sufficiently intelligible, it is necessary to report briefly on the routine work of the station.

Watches.

There are two watches of twenty-four hours each, beginning at 10 o'clock a.m., with a Boarding Medical Officer and an Inspector on each. Both officers are thereafter off duty for a corresponding period. The provision for boarding vessels is, therefore, continuous. Ordinarily, it might be supposed that during the ebb of the tides vessels bound for Glasgow must go to anchor. This, however, is not the case, as those of large tonnage, when light, have a draught small enough to allow them to enter the docks in Glasgow even at low tide, so that vessels may be continuously passing the Tail-of-the-Bank. This compels the watch on duty to be in constant readiness during the whole twenty-four hours, thus making eighty-four hours per week on duty by each watch.

Class of Vessels Boarded.

All vessels from foreign ports bound for Glasgow, by night or day, whether direct or after having called at home ports, are boarded.

"Bound for Glasgow" includes vessels to the harbours within the Glasgow Customs port.

Day and Night Signals.

By the Cholera Order, Part IV., Art. 25, the master of a vessel infected with cholera, yellow fever, or plague must hoist and keep flying from the mast-head, from sunrise to sunset, a large yellow and black flag, borne quarterly, from the time he gets within three miles of the coast. Similarly, during the night, from sunset to sunrise, he must, by the amending Order, December, 1902, show prominently in the rigging a signal consisting of three lights placed in the form of an equilateral triangle, each light being not less than 6 feet apart, the apex one being white and the two base ones red.

Formerly a yellow flag indicated a vessel from a foreign port, and a yellow flag with a black spot a vessel from an infected port, but these latter are no longer enforced.

Disinfecting Apparatus—Available at Boarding Station.

The launch "Nathaniel Dunlop" is fitted with a disinfecting tank of fifty gallons capacity, and a sixty-foot rubber hose with a special nozzle for throwing a very fine jet. Under the 75 lbs. steam pressure to which this tank can be raised by the launch's boilers, the disinfectant, when applied to any surface,

spreads and effectively penetrates. This jet, under said pressure, can be thrown 30 to 40 feet into the air before it breaks or begins to spread. There is also in the launch, ready for use, a good-sized hand-pump spray producer.

When a case or suspected case of infectious disease is met with on board a vessel, full particulars are obtained from the master or surgeon by the Boarding Medical Officer and telephoned to the Sanitary Chambers, Glasgow, so that the vessel may be met on her arrival in dock, and the removal of the patient arranged. If the case is only a suspected one, it is removed to hospital for observation.

SUMMARY OF WORK AT BOARDING STATION, PRINCES PIER, 1905.

Number of Vessels entered in Daily Register, 1905.

During the twelve months, 1st January to 31st December, 1905, the daily register of vessels trading with foreign ports, and which have passed the Tail-of-the-Bank bound for Glasgow, shows a total of 2,010, or an average of 5.5 vessels per watch. The record number boarded in one watch in 1905 was 15 vessels.

Table No. 1 shows the vessels for each month arriving from infected ports, and is divided into two groups, viz.:—first, vessels arriving from infected ports with cargo; second, vessels arriving from infected ports “light.”

“Infected” means infected under the Cholera Order, and the vessels are boarded and dealt with under Art. 8 of that Order.

“Light” means that the vessel has not cargo from foreign. She might have “coasting” cargo for Glasgow—i.e., cargo from some home port, or she might have outward cargo—i.e., cargo from a home port destined for a foreign port in the course of her outward voyage, and still be “light.”

Table No. 1 also shows the vessels boarded by the Customs Officers during the year. The total number boarded by them is 1,473, as compared with 2,010 by the Port Local Authority Boarding Officers. The difference is due to the fact that the Customs Officers at the Tail-of-the-Bank do not keep a record of coastwise vessels “light.” These are only “visited” when they have foreign cargo on board, in which latter case they are dealt with as if direct from foreign, except that no pratique certificate is required, this having already been granted at the first home port of call.

Table No. 2 shows the ships boarded and the passengers and crews inspected during each month of 1905, and is divided into three groups, viz.:—first, those from infected ports with cargo; second, those from infected ports “light;” and third (Group D), those trading with non-infected foreign ports with and without cargo.

The following Tables present a summary of the work of medical inspection at the Boarding Station conducted during 1905:—

- (1) This Table shows the total number of vessels arriving from foreign, distinguishing between those from infected and non-infected ports;
- (2) Shows the number of ships boarded and of persons inspected at the Boarding Station, distinguishing between the number inspected under the Cholera Order and for other reasons.

TABLE NO. 1.—NUMBER of SHIPS ARRIVING from FOREIGN—YEAR 1905.

CLASS.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	TOTAL.
(A)													
H.M. Customs, ...	132	110	114	102	112	125	194	128	111	114	108	123	1,473
(B)													
Number of foregoing from Ports infected within the meaning of the Cholera Order, ...	28	26	29	20	29	23	28	25	28	14	16	24	290
(C)													
From infected Ports, but reaching Clyde "light"—boarded under Article 8 of Order.	29	27	23	28	38	20	36	17	29	19	24	25	315

TABLE 2.—NUMBER of ARRIVALS BOARDED and of PERSONS INSPECTED at BOARDING STATION, 1905.

CLASS.	January.			February.			March.			April.			May.			June.			HALF-YEAR TOTAL.		
	Ship.	Crew.	Pass.	Ship.	Crew.	Pass.	Ship.	Crew.	Pass.	Ship.	Crew.	Pass.	Ship.	Crew.	Pass.	Ship.	Crew.	Pass.	Ship.	Crew.	Pass.
From Infected Ports—																					
(B) With Foreign Cargo, ...	28	1,247	...	26	1,122	...	29	1,484	1	20	1,342	...	29	1,082	1	23	1,003	9	155	7,280	10
(C) Light or with Outward Cargo,	29	1,401	...	27	1,502	...	23	877	...	28	1,157	...	38	1,741	1	20	1,145	8	165	7,823	8
	57	2,648	...	53	2,624	...	52	2,361	1	48	2,499	...	67	2,823	2	43	2,148	17	320	15,103	18
(D) From Non-infected Foreign Ports,	118	3,310	82	100	2,572	182	101	2,706	151	100	3,424	436	99	3,321	761	109	4,092	1,588	627	19,425	2,003
	175	5,958	82	153	5,196	182	153	5,067	152	148	5,923	436	166	6,144	763	160	6,240	1,605	947	34,528	2,021

CLASS.	July.			August.			September.			October.			November.			December.			HALF-YEAR TOTAL.		
	Ship.	Crew.	Pass.	Ship.	Crew.	Pass.	Ship.	Crew.	Pass.	Ship.	Crew.	Pass.	Ship.	Crew.	Pass.	Ship.	Crew.	Pass.	Ship.	Crew.	Pass.
From Infected Ports—																					
(B) With Foreign Cargo, ...	28	1,721	39	25	1,387	41	28	1,381	5	14	836	5	16	1,079	4	24	1,135	4	135	7,539	98
(C) Light or with Outward Cargo,	36	1,602	3	17	781	2	29	1,212	5	19	958	5	24	1,061	1	25	1,473	6	150	7,087	22
	64	3,323	42	42	2,168	43	57	2,593	10	33	1,794	10	40	2,140	5	49	2,608	10	285	14,626	120
(D) From Non-infected Foreign Ports,	178	6,105	3,333	117	4,035	1,447	103	3,665	1,113	123	4,336	1,063	118	3,890	930	139	4,283	1,930	778	26,314	9,816
	242	9,428	3,375	159	6,203	1,490	160	6,258	1,123	156	6,130	1,073	158	6,030	935	188	6,891	1,940	1,063	40,940	9,936

CLASS.	YEAR'S TOTAL.		
	Ship.	Crew.	Pass.
From Infected Ports—			
(B) With Foreign Cargo, ...	290	14,819	109
(C) Light or with Outward Cargo,	315	14,910	31
	605	29,729	140
(D) From Non-infected Foreign Ports,	1,405	45,739	13,016
	2,010	75,468	13,156

The vessels of the first and second groups are boarded under the Cholera Order, Art. 8, as already stated. All cases of infectious disease may be dealt with under the Public Health (Scotland) Act, 1897.

The Boarding Medical Officers of the Port Local Authority of Glasgow board all vessels classed under Group D, Table 2, whereas those of other ports—*e.g.*, London—while they *visit* all by night or day, *board* only those which have sickness on board. In the latter case the master of a vessel willingly receives the Boarding Medical Officer, as he thereby relieves himself of the onus of deciding whether the sickness is infectious or not.

“Visiting” a ship means going alongside, hailing, and receiving particulars from the bridge.

“Boarding” means going on board, examining, obtaining particulars and a signed declaration as described.

Infected Ports (by International Agreement).

By international convention, certain nations have agreed to make the notification of cholera, yellow fever, and plague compulsory, and to promptly inform each other through their diplomatic representative of the occurrence of any case of such disease in their territory, and to keep each other fully informed of the progress of any epidemic and the means taken to combat it, the regulation of exports, imports, &c. This organisation is, no doubt, effective for European countries, but still leaves us without the equally necessary information concerning the health of the countries outside Europe, and to which our commerce extends. For this information we are practically dependent on the bills of health brought by the ship masters and the press, when, through Government assistance, it might be easily obtainable at an earlier date.

The United States Public Health and Marine Hospital Service publishes weekly a report in accordance with an Act of Congress passed 15th February, 1893, in which appears information of the general health of every country, but particularly of the appearance of cholera, yellow fever, plague, smallpox, and all other infectious diseases as they occur all over the world.

A copy of this weekly report has been sent to the Boarding Station since May, 1905, and has formed the basis of our information *re* infected ports and areas since then. This information is necessarily a little late, and requires to be supplemented with information from the daily papers. The only newspaper taken regularly at the Boarding Station is the *Glasgow Herald* (daily).

At Dr. Chalmers' suggestion, and through the kind offices of Provost Denholm, of Greenock, I have been given the use of the library of the Chamber of Commerce of Greenock for three months. After that period, however, it will be necessary to become a member. As yet there has been no time to form an opinion of the utility of this experiment. I might suggest, in the meantime, that I be allowed to take in for the Boarding Station a very useful daily paper called *The Liverpool Journal of Commerce and Shipping Telegraph*. It seems to give the earliest and fullest general shipping news.

Areas which may be said to be permanently Infected.

All ports east of Suez, as far as China, Japan, the Phillippines, Straits Settlements, Siam, &c. (Infected with cholera, plague, and smallpox.)

In the west—Panama, Mexico, Peru, West Coast of South America, &c. (Infected with plague, yellow fever, and smallpox.)

Cholera, 1905.

At the end of 1904 and the beginning of 1905, cholera was prevalent in certain parts of Russia and Turkey in Europe, extending into Trans-Caspian territory, Trans-Caucasia, Turkestan, &c. In India it was chiefly confined to Calcutta. In July, cholera was nowhere reported in Europe. In August and September it appeared in Germany, becoming general in Eastern Prussia. It was supposed to have spread from Turkestan and Western Asia into Prussia, along the Volga, thence through Southern Russia to the head waters of the

Vistula, up which river it was carried by raftsmen, and finally to Hamburg by emigrants brought by train.

Only three cases occurred in Hamburg, and no case reached this country. Every precaution was taken with vessels arriving from that port and those of the Baltic and North Sea. Hamburg is now in a very different sanitary state from that of 1893. Its water supply, although still from the Elbe, is purified by a slow sand filtration and sedimentation.

Yellow Fever.

Yellow fever remains constant in western ports—Brazil, British Honduras, Ecuador, Mexico, Panama, Venezuela, &c., &c.

An epidemic of considerable dimensions occurred in New Orleans, Mississippi City, and neighbourhood. In New Orleans alone 3,235 cases and 415 deaths occurred from 21st July to 11th October, 1905, the period during which the disease was most prevalent.

The lowness of our temperature greatly modifies the danger of introduction of yellow fever into this country, as the *Stegomyia fasciata* (mosquito) is unable to breed or bite in a temperature below 76° F.

Plague.

Plague has continued general throughout the year in Arabia, Egypt, and India. It has also continued to hold a place in South Africa (Cape Colony)—Port Elizabeth; in British East Africa—Mombassa; in Portuguese East Africa—Mozambique. In Australia—New South Wales and Queensland—it was got rid of, but reappeared in West Australia, Perth, and Freemantle. Plague also continues to be reported from Argentina—Buenos Ayres; from Brazil—Bahia, Santos, and Para; from Chili—Autofagasta and Valparaíso; from Peru—Lima and Callao; from China—Amoy, Hong Kong, and Formosa; from Japan—Tokio; and from the Straits Settlements and the Phillippines. It was reported in Turkey—Adalia and Beirut—in July, and in Zanzibar in July and September. One case only appeared in Great Britain—Manchester—on 12th June. This case was brought by the s.s. “Hylas” from Buenos Ayres, *via* Hamburg. No other cases followed. As the s.s. “Hylas” was known to have had plague-infected rats on board, and that this man often walked about his cabin with bare feet, the rats were probably the source of infection.

Smallpox and other Infectious Diseases.

Smallpox and other infectious diseases have been so generally prevalent at home and abroad as to require no special localisation—*i.e.*, no great epidemic has occurred during the year.

TABLE 3.—NUMBER and NATIONALITY OF SHIPS and CREWS INSPECTED, 1905.

					Ships.		Crews.
British,	...	...	...	...	1,569	...	50,823
Natives of India,	...	...	...	...	—	...	14,314
Chinese,	...	...	...	...	—	...	1,954
Norwegian,	...	...	...	...	175	...	2,691
Swedish,	...	...	...	...	62	...	1,134
Spanish,	...	...	...	...	61	...	1,402
Italian,	...	...	...	...	26	...	585
French,	...	...	...	...	42	...	946
German,	...	...	...	...	27	...	389
Danish,	...	...	...	...	15	...	197
Austrian,	...	...	...	...	20	...	554
Egyptian,	...	...	...	...	1	...	180
West Indian,	...	...	...	...	—	...	7
Greek, ...	...	...	...	...	5	...	109
Roumanian,	...	...	...	...	1	...	31
Arabian,	...	...	...	...	—	...	57
Japanese,	...	...	...	...	—	...	4
Dutch,	...	...	...	...	2	...	11
Belgian,	...	...	...	...	1	...	20
Russian,	...	...	...	...	3	...	60
Total,				...	2,010	...	75,468
Year.					Ships.	Crews.	Passengers.
1904,	...	...	...	...	2,067	72,997	10,741
1905,	...	...	...	...	2,010	75,468	13,156

Table No. 3 gives a detail of the nationalities of the ships and crews inspected during the year 1905. It shows that, of the 2,010 vessels boarded, 1,569 were British and 441 foreign owned.

Those nationalities opposite which no ships are marked—*e.g.*, natives of India, Chinese, &c., refer to nationalities which have formed part of the crews of British vessels. Foreign vessels also have mixed crews, although not to the same extent as British vessels.

The enormous difference in the number and size of British and foreign owned shipping is seen by the fact shown in Table 3, viz.:—that the 1,569 British ships were manned by 67,159 men, or an average of nearly 43 men per ship, whereas the 441 foreign-owned ships were manned by 8,309 men, or nearly 19 men per ship.

TABLE 4.—NUMBER, CLASS, and TONNAGE of VESSELS.

		No. of Vessels.		Tonnage.
Foreign.	British.	{ Steam,	... 757	1,178,647
		{ Sailing,	... 15	9,236
	Foreign.	{ Steam,	... 184	199,361
		{ Sailing,	... 39	49,366
Coast-wise.	British.	{ Steam,	... 773	1,748,305
		{ Sailing,	... 24	23,850
	Foreign.	{ Steam,	... 208	147,816
		{ Sailing,	... 10	8,721
			2,010	3,365,302

The tonnage here represents the “registered” not the “gross” tonnage. Table 4 shows the vessels in three groups, viz.:—(a) foreign and coastwise (b) British and foreign, and (c) steam and sailing.

The word “foreign” is used in groups (a) and (b) with different meanings. In Group (a) it is used as indicating vessels direct from foreign ports, and is always used in this sense by Customs officers.

In Group (b) it is used in its ordinary sense in relation to the national flag carried or ownership.

“Coastwise” means that, although the vessels are from foreign, they reach the Tail-of-the-Bank *via* home ports.

British Steamers from Foreign—“Direct” and “Coastwise.”

It is noticeable in Table 4, with regard to British steamers, that those arriving “coastwise,” although only 16 more in number than those arriving “direct,” the former have a tonnage of 569,658 tons more than the latter. The coastwise vessels average 2,261 tons per ship, while the direct vessels average 1,557 tons per ship.

Foreign-owned Steamers.

In the case of foreign-owned steamers, the coastwise vessels are 24 more in number than the direct, but the direct represent 51,545 tons more tonnage, and average 1,083 tons per ship, as against an average of 710 tons per ship coastwise vessels.

Greater Tonnage in British “Coastwise” Vessels.

The explanation of this would appear to be that the export shipping trade of Glasgow is much greater than the import. (It should be noted, however,

that the tonnage mentioned in Table 4 is the registered tonnage of the vessel, and, while fairly indicating relative size of vessels, has no reference to amount of cargo carried.) The large vessels belonging to Alfred Holt, Patrick Henderson, The Anchor, The City, The Clan Lines, &c., trading to the Far East, the Ellerman Harrison, Pacific Steam Ship Navigation Company, and, to some extent, the Allan and Donaldson Lines, trading in the Western Ocean, return to this country with cargoes for London Liverpool, and other large cities, and come to Glasgow "light" to carry away return cargoes consigned to these various ports.

Greater Tonnage in Foreign-owned "Direct" Vessels.

The explanation of this is that the direct foreign-owned vessels consist of large Spaniards, Austrians, and Italians loaded with ore, fruit, grass, and general cargoes, direct, for Glasgow, while the coastwise consist of smaller Norwegians, Swedes, Germans, and Danes carrying coasting cargoes or empty.

Imports.—Glasgow.

The staple import to Glasgow seems to be *iron and copper ore*, of which at least an average of one cargo per day arrives at the Tail-of-the-Bank.

The ore comes mostly from Spain and Greece, but new mines have recently been opened at Nicolaieff, on the Black Sea, which are also sending cargoes of iron ore. The principal towns are Seville, Bilbao, Huelva, Serephos, &c., and the carrying is done by British, Spanish, Austrian, and Italian tramps.

Nickel ore also arrives at about the rate of two cargoes per month, brought from New Caledonia by large French government-subsidised sailing vessels.

Other imports are—

Ice from Norway, carried by Norwegians.

Grain from the Black Sea and Danube, carried by British vessels. (Since the commencement of the Russo-Japanese War there have been very few cargoes brought.)

Grain from Canada, as part of general cargoes, carried by the Allan and Donaldson Lines.

Fruit from Burriana and Valencia, carried by mixed tramps.

Cattle and General from the United States of America and Canada. Carried by the Allan Line from Philadelphia, Boston, St. John (N.B.), and Halifax. Carried by the Donaldson Line from Baltimore, Newport News, St. John (N.B.), and Halifax.

General Cargoes carried by—

The Anchor Line from New York.

The Allan Line from the ports mentioned above.

The Donaldson Line from the ports mentioned above.

Exports.—Glasgow.

Consist of iron, steel, rails, machinery, and manufactured goods and coal in large quantities, &c., &c.

Importation of Cattle.

The importance of the cattle trade between Glasgow and the United States and Canada entitles it to special notice.

During the year 1905, 149 vessels of the Allan and Donaldson Lines brought varying-sized consignments of cattle, horses, and sheep from the United States and Canada to this country.

Of these, 76 were from the United States, 73 from Canada, 99 were direct for Glasgow, and 50 arrived *via* Liverpool, at which port part, occasionally all, of the consignment, was landed.

All these vessels carried general cargo, and often passengers at the same time.

Landing of Imported Animals.

The landing of imported foreign animals is regulated by the Diseases of Animals Acts, 1894 and 1896, and subsequent Orders, and must be carried out at a wharf specially appointed by the Board of Agriculture, and called the Foreign Animals Wharf. The Foreign Animals Wharf on the Clyde is the Yorkhill Cattle Wharf.

The cattle, when landed, are handed over by the Commissioner of Customs, and placed in charge of an Inspector of the Board of Agriculture.

Officers of Customs must not allow dung, fodder, litter, pens, hurdles, or utensils, used for or about imported foreign animals, to be removed from the ship, except on to a foreign animals wharf or into the manure barges, until the Inspector of the Board has certified the animals to be free from disease, and his certificate has arrived, or permission in writing has been obtained from the Local Authority of the district.

Disinfection of Dung, Broken Fodder, Litter, Fittings, &c.

If the animals are free from disease, the dung, broken fodder, &c., before being removed from the vessel in barges, must be mixed with good quick lime—40 bushels of lime per barge, or 15 bushels per 100 head of cattle as a minimum—and mixed in alternate layers. The fittings, &c., must be scraped, washed with water, and then with a solution of carbolic acid, and finally limewashed before being landed or put aside for future use. This must be done under the supervision of the Customs officers.

In Case of Disease amongst the Animals.

The dung, litter, &c., must be destroyed under the joint-supervision of the Customs and the Veterinary Inspector of the Board of Agriculture for the port or district.

Carcases on Board.

If a vessel arriving at a port should have on board a carcase of an animal which has died or been killed on the voyage, the master must report same to the proper Officer of Customs at once. The carcase may not be removed even to the Foreign Animals Wharf, except by permission of the Officer of Customs. It is later disposed of or destroyed by order of the Inspector of the Board of Agriculture.

There is a small dressing shed on the Foreign Animals Wharf, where these carcases are dressed for inspection. If a carcase is found to be sound, it is allowed to be sold for food, if diseased, it is taken in a special van to a destructor belonging to the wharf, and quite close to it, where it is destroyed. In case of any infectious or contagious disease amongst the animals, the dung, broken fodder, &c., is destroyed in the same way. The pens, fittings, hurdles, and utensils, under similar circumstances, are either burned in the ship's furnaces or in this destructor.

Removal of Dung, Litter, &c., in Glasgow.

Having landed the cattle at Yorkhill Cattle Wharf, the vessel proceeds to her appointed general cargo dock. The temporary cattle fittings are at once taken down, cleaned, disinfected, and stowed away. Meanwhile, while the manure is being collected and mixed with quick lime for transference to the barges alongside, the holds are opened, and the unloading of cargo and the removal of the dung, &c., to the barges go on simultaneously.

The barges take the dung to a crane wharf, where it is hoisted out and placed in wagons, and sent into the country—Ayrshire chiefly. The Company, far from gaining pecuniarily over the manure, have to pay for its disinfection and removal. They contract with the barge owners for the carrying away of the dung, broken fodder, &c., which is afterwards sold as manure. Messrs. J. & G. Turnbull & Co. hold this contract at the present moment.

Class of Ships and Freight.

Cattle carrying from America, at its commencement, was a very profitable business, as much as £6 or £7 per head freight being readily obtainable. Competition, however, has produced its usual salutary effect, not only on the price of freight, but also in the greater suitability of the vessels employed. Unfortunately, the improvements and prices paid are in an inverse ratio, since, as improvements have been made in the ships and in the conditions under which the cattle are carried, the price for carrying them has diminished, until, I am informed, it has nearly reached that of ordinary cargo. Besides the bullock itself and its fittings, its water and fodder for the voyage have to be carried, and take up paying cargo-carrying space. The food and accommodation of the cattlemen is also included in the price per head of cattle.

As aids to the care and treatment of the animals on the voyage, we have—

(1) *The Insurance Rates*, which make for the improvement of the conditions of the animals on the voyage, since a vessel which shows a high percentage of loss will have to pay proportionately higher rates next voyage; care is, in consequence, taken to prevent injury.

(2) *The Society for the Prevention of Cruelty to Animals*.—This Society has agents meeting every cattle ship, and every case of maiming or injury amongst the animals is thoroughly investigated by the Society's officers.

(3) *Cattlemen and their Work*.—The cattlemen, under the charge of a foreman, are provided by the shippers, and usually number about four men per 100 head of cattle. They feed and water the cattle thrice daily, and, when the weather permits, they clean out the stalls once a day, taking the animals out into the passageway one by one to do so. The sailors never interfere with the cattle, except when their services are required to assist to throw dead ones overboard. In good weather there seems to be no special hardship in the lot of these animals during the voyage, but, when heavy weather is encountered, the indescribable filthy mess sometimes met with on the arrival of the vessels at Tail-of-the-Bank is abundant evidence of a horrible experience for man and beast.

Cattle Vessels via Liverpool.

It has been already mentioned that, out of 149 cattle ships in 1905, 50 discharged either the whole or part of their cattle in Liverpool. All these vessels carry general cargo for Glasgow, and naturally endeavour to resume their voyage with as little delay in Liverpool as possible. On this account, and to save a tide, they frequently bring the manure round to Glasgow, instead of getting rid of it in Liverpool. Some masters have it thrown overboard on the voyage round, and, as it seems to be of no value pecuniarily to the owners of the vessels, but rather a loss, it could be no hardship if they were all required to get rid of it before reaching the Tail-of-the-Bank. If, say, 300 cattle had been landed in Liverpool, somewhere about 10 or 12 cattlemen should have been left idle, and, even if some were under contract to be landed in Liverpool, there should still be a sufficient number left, with the help of the sailors, to clean the parts of the ship left vacant by the cattle landed in Liverpool.

The Sanitary Condition of Ships.

It is the duty of the Sanitary Inspector to examine the accommodation and conveniences provided for the sailors and firemen, and to report on any structural defects or insanitary conditions which he may discover.

The Merchant Shipping Act states the minimum requirements as to space per man, the number of water-closets, &c., and the Board of Trade Surveyors examine and pass all British ships which have conformed to these requirements.

There is great need for improvements in the accommodation for sailors, notably in the matter of space. 12 feet floor space and 72 cubic feet air space is certainly as little as an adult human being could possibly manage to live in

and retain his health, but to increase this space something must be taken from the carrying capacity, and herein lies the difficulty.

When such limited space has to be made the best of, however, it becomes the more necessary for inspectors to be vigilant in keeping forecastles up to the best sanitary mark, especially in ventilation and cleanliness. One is constantly forced to the conviction that if shipbuilders employed sanitary experts to superintend the construction of vessels, the Board of Trade requirements could still be conformed to and better results obtained even with the limited space allowed.

Inspection of Vessels at the Tail-of-the-Bank.

In considering the inspection of vessels at the Tail-of-the-Bank, it must be remembered that the Boarding Medical Officers and Inspectors must not cause a ship to be delayed, except where necessary under the Cholera Order. The differences in the extent of the inspections will therefore be better understood by the following grouping:—

- (a) Those vessels which go to anchor on account of tide, &c., and allow of "careful inspection."
- (b) Those which arrive on a flowing tide, and go on without hurry, giving time for, at least, a "partial inspection."
- (c) Those which arrive just in time to catch the tide, and to which every moment is important, giving very little time even for partial inspection.
- (d) Those which arrive in a gale of wind, and, proceeding to Glasgow at once, cannot be boarded.

The following Table will show the proportions in which the vessels arrived and were inspected during the year 1905:—

	Steamers.	Sailing Ships.
(a) Carefully inspected, ...	993	36
(b) Partially inspected, ...	878	38
(c) Boarded but not inspected, ...	31	1
(d) { Hailed, ...	7	2
{ Neither boarded nor hailed, ...	20	4
	1,929	81
	81	
Total, ...	2,010	

From the foregoing grouping of arrivals the above Table of inspection will be easily understood, as the distribution practically coincides in both.

TABLE 5.—NUMBER AND NATIONALITY OF VESSELS IN WHICH DEFECTS WERE FOUND DURING THE YEAR 1905.

British, ...	326*
Norwegian, ...	26
Spanish, ...	19
Italian, ...	14
French, ...	7
Austrian, ...	5
Swedish, ...	5
Greek, ...	2
German, ...	3
Danish, ...	2
Russian, ...	1
Total, ...	410

* Of the 326 British vessels on which nuisances or defects were found, 137 were cattle-ships, the nuisance being an accumulation of manure. As the dung was inevitable, unless in excess or found where it should not have been, it can hardly be classed as a nuisance.

Including the accumulations of manure, the above Table shows that nuisances were found in 20·7 per cent. of British vessels, and without the manure in 12 per cent. The percentage of foreign vessels in which nuisances were found is, by the same Table, seen to be 19 per cent. of the foreign vessels boarded.

Of the 2,010 vessels—British and foreign—410 were found defective or having insanitary conditions, being equal to 20·4 per cent. of the whole.

TABLE 6.—NUMBER AND NATURE OF NUISANCES FOUND, 1905.

(a) <i>Occurring through structural defects.</i>		(b) <i>Occurring through neglect.</i>	
Forecastles—		Forecastles—	
Insufficient ventilation, ...	23	Dirty, " ...	48
Insufficiently lighted, ...	14	Ventilators blocked, ...	1
Insufficient space, ...	3	Gear stored in bunks, ...	7
Deck planks worn (water accumulat- ing), ...	2	Bogies required, ...	19
Overhead deck leaking, ...	43	Bunks dirty, ...	1
Ports broken and leaking, ...	36	Verminous, ...	1
Fore-peak hatch broken and danger- ous, ...	4	Deck—	
Doors off food lockers, ...	16	Galley dirty, ...	2
Opening required for stove funnel, ...	2	Accumulation of manure, ...	137
Requiring repainting, ...	37	Water tanks dirty, ...	1
No bulkhead of hawse pipe (anchor chain open to forecastle), ...	10		
Ventilators broken and holed, ...	1		
Steam heater or bogey chimney (leak- ing or exposed, dangerous, causing ing burns), ...	3		
Broken bogies, ...	11		
Companion-way out of repair (danger- ous), ...	4		
Forecastle sweating (causing damp- ness), ...	11		
Rope locker without door, ...	3		
Smells from chain locker and fore- peak, ...	1		
Scuppers too high above deck, ...	1		
No proper food lockers, ...	1		
Water-closets—		Water-closets—	
Insufficient water-closets, ...	3	Dirty, fouled and furred, ...	50
Scuppers too high, ...	6	Water-closets choked, ...	49
Seats broken, ...	12	Scuppers choked, ...	2
Roofs too low, ...	5	Gear stored therein, ...	5
Seats too low, ...	1	Used as rope or paint locker, ...	6
Cement floor broken, ...	3	Line-washing required, ...	3
Requiring repainting, ...	9	Bathrooms dirty, ...	1
Pipe leaking, ...	1		
Situation bad, ...	2		
Total, ...	267	Total, ...	334
General condition of ship dirty and unsatisfactory, ...	27		
Bilges uncleaned, ...	1		

Total number of nuisances found, 629.

Classification of Defects and Nuisances reported during 1905.

All the defects and nuisances discovered are classified under the headings, "Due to Structural Defects," "Due to Neglect," and "According to Site."

The line of demarcation between structural defects and those from neglect runs so thin at times that it is difficult to keep them from mixing—*e.g.*, the necessity for repainting a forecastle is “structural,” but the necessity for lime-washing a water-closet is “neglect.” Again, a broken bogey in a forecastle is a structural defect, but no bogey at all is neglect.

Table 6 gives a detailed statement of the nuisances found in 410 vessels, British and Foreign, during 1905. The classification, although somewhat arbitrary, is much the same as that employed by other Port Local Authorities.

As already stated, the shortness of the time available for inspection of the majority of vessels arriving at the Tail-of-the-Bank makes the work very unsatisfactory. Indeed, a really careful inspection is impossible, since the tanks, bilges, and many other parts of a loaded ship cannot be got at, and those with cargo are the ones which go to anchor, the light vessels, which could be inspected, much oftener going right on, proving that the most suitable place to inspect a ship is the dock.

The one advantage of the Tail-of-the-Bank over the dock is that at the former one is more likely to see the actual condition of a vessel as she is at sea, but even that is apt to be misleading, as the disorder at the end of a voyage is more apparent than real.

Table 6 speaks for itself. The most obvious defects—*viz.*, those which must necessarily follow such a limitation of space as that allowed for crew accommodation—show most prominently.

The foremost are, “insufficient ventilation and light,” and, as a direct sequence, “broken port holes,” “dirty forecastles and water-closets,” and the necessity for “repainting” to cover up the imperfections, &c., &c. The very fewness of the cases under the other headings proves rather the lack of time to find them than their non-existence.

Another defect, to be seen most frequently in British sailing and old foreign steamships, is the lack of proper covering or separation of the anchor chains from the crew’s sleeping and eating room—the forecastle.

It must be remembered that, when a vessel is at anchor, much of the chain lies at the bottom with the anchor, and when brought on board carries much of this bottom with it into its place of storage underneath the forecastle floor, where it readily dries. When the anchor next rushes to the bottom, the chain, passing through the forecastle, fills the place, and covers the men’s bunks and food with dust of whatever quality the last bottom happened to have been composed.

As the space allowed for the crew is both for sleeping and eating in, the first likely improvement would be in the direction of their obtaining a separate place in which to take their meals—*i.e.* a mess room of some sort. Such a room is a necessity, and is provided for the officers of every vessel. It would obviate the necessity for good lockers, the doors of which are so very often missing in the forecastle. In the meantime, however, these lockers are an absolute necessity on account of the manner in which the crew’s rations are issued. The manner varies in different vessels, but in all certain articles are issued more or less in quantity, and, without lockers, would lie exposed in bunks or elsewhere.

TABLE 7.

CASES OF SICKNESS OCCURRING IN 1905.

DISEASES.	No. of Cases.	Natives.		Europeans.		Deaths.	How dealt with.		
		Voyage.	Arrival.	Voyage.	Arrival.		Removed to Belvidere.	Removed to Home.	In Foreign Port.
Plague, ...	1	1	—	—	—	?	—	—	1
Small-pox, ...	15	6	—	9	—	1	—	L'pool 1	8
Enteric Fever, ...	11	5	—	—	6	3	5	—	—
Measles, ...	14	—	—	5	9	—	6	6	1
German Measles, ...	1	—	—	—	1	—	—	1	—
Diarrhœa and Dysentry,	5	—	3	—	2	—	1	—	—
Influenza, ...	5	2	—	—	3	—	1	—	—
Phthisis, ...	6	2	—	1	3	4	—	2	—
Trachoma, ...	10	—	—	—	10	—	—	Udd'ston 2	—
Parotitis, ...	2	—	—	—	2	—	—	—	—
Malaria, ...	2	—	—	—	2	—	—	—	—
Trypanosome *	3	—	3	—	—	1	—	—	—
Beri-beri, ...	13	—	12	—	1	1	4	—	—
Bright's Disease, ...	1	—	—	1	—	1	—	—	—
Hæmatemesis, ...	1	1	—	—	—	1	—	—	—
Scurvy (boils), ...	4	—	—	—	4	—	—	—	—
Pneumonia, ...	4	1	1	1	1	1	—	1	1
Bubo (Inguinal), ...	1	—	1	—	—	—	1	—	—
Venereal, ...	2	2	—	—	—	—	—	—	—
Tonsilitis, ...	4	1	2	—	1	—	1	—	—
Chicken-pox, ...	1	—	—	—	1	—	1	—	—
Rheumatic Fever, ...	1	—	—	1	—	—	—	—	—
Hepatic Congestion, ...	1	1	—	—	—	1	—	—	—
Asthma and Cardiac, ...	3	1	1	1	—	2	—	—	—
Whitlow, ...	1	—	1	—	—	—	—	—	—
Not Diagnosed, ..	3	1	—	2	—	1	—	L'pool 1	1
	115	24	24	21	46	17	20	14	12

* Cases of a disease having ill-defined symptoms—cough-œdema, ulceration of legs, &c.—occurred in two vessels. One died just before the vessel reached Glasgow and was examined *post mortem*. Dr. Buchanan found, on examination of the spleen, an organism of the trypanosome type.

Cases of Infectious and other Diseases, 1905.

The record of diseases dealt with during the year 1905 is somewhat uneven. At first the intention had been to record infectious diseases only, but later in the year other diseases were added, all being entered in the daily register in the column under "Remarks."

For 1906 a special "Register of Diseases and Nuisances" has been prepared, and now all diseases and nuisances met with on the vessels boarded are being entered in it, so that, in the future, a more complete statistical report will be possible.

Table 7 shows a list of the diseases met with during 1905, as shown by the fortnightly reports.

An attempt has been made in this Table to show the number of deaths, and the manner in which the cases arriving at the Tail-of-the-Bank were dealt with. Some, however, are not accounted for, and the result is not known of those cases which were landed in foreign ports. Others occurred in the course of long voyages, and had recovered on arrival here.

Seventeen deaths are shown in 115 cases, or a mixed case-mortality of 14·7 per cent. of the 115 cases. 48 occurred amongst natives and 67 amongst Europeans. This proportion of Europeans to natives seems surprising at first sight, until one finds that it represents 1·13 cases per 1,000 European crew, and almost 3 per 1,000 native crew.

This is not exactly correct, since the 67 European patients include those both from passengers and crews, so that, if the passengers for the year were added, the 1·13 per 1,000 would be much reduced. The result obtained, taking the European crews alone, will serve to explain what would at first seem to indicate a greater amount of sickness amongst Europeans than natives.

It will be noted that, of the 115 cases mentioned, 70 were reported as being sick on arrival at the Tail-of-the-Bank, and, of these, 50 suffered from the following diseases, viz.:—Enteric fever, 6; measles, 10; diarrhœa and dysentery, 5; influenza, 3; trachoma, 10; parotitis, 2; chickenpox, 1; and beri-beri, 13. The remaining 20 dealt with were composed of—Malaria, 2; uncertain (trypanosome), 3; phthisis, 3; scurvy, 4; pneumonia, 2; bubo (inguinal, proved not plague), 1; tonsilitis, 3; cardiac, 1; and whitlow (blood poisoning), 1.

It has been already shown that a greater number of vessels arrive at the Tail-of-the-Bank from foreign "coastwise" than "direct." The vessels of the former class touching at home ports are consequently examined, and the cases of infectious disease removed and dealt with before reaching this Boarding Station. These vessels are, nevertheless, dangerous, and their crews require careful examination. The danger referred to was pointed out in connection with the s.s. "Hylas," where no case of human plague occurred until after the holds had been opened and the cargo removed, or partly removed. The danger to the crew of infection from plague-infected rats seems then to become greater than during the voyage.

The two diseases of which most cases were reported on arrival were beri-beri, 13, and trachoma, 10. The cases of beri-beri were all of the sub-acute order; some were mild, and able to continue the voyage, while others were removed to Belvidere Hospital for treatment. Beri-beri, although almost certainly either contagious or infectious, or both, under suitable circumstances of climate and material, could not become epidemic in this country. Even in tropical countries where it is epidemic, although not confined to the natives, almost the only Europeans I have seen suffer from it were poorly-paid plantation assistants who tried to live on coolie fare, the consequent loss of vitality and extreme anæmia, which latter is essential to beri-beri, laying them open to its attack. Trachoma—a contagious disease of the inner surface of the eyelids—has recently been made use of by the American Commissioners of Immigration to return undesirable aliens emigrating to America *via* this country. The cases are even more numerous this year (1906) than last. They occur

mostly among Russian-Jew and Russian-Pole emigrants. The owners of the vessels which take them out have to pay a fine for each one in America, to bring them back to this country, and, finally, are bound under contract and penalty with this Government to return them to their own country. On their arrival here, full particulars of their nationality, address, and final destination, &c., are obtained by the Boarding Medical Officer. Some, who have been resident in this country, in the colliery districts, after being rejected in America, return to these districts, in which case the Port Medical Officer informs the Medical Officer of Health of their district of their address and condition.

In conclusion, there is a subject of the greatest importance both to the work and to the staff of the Boarding Station which ought to be considered. Those whose work is in any way connected with shipping, even in these later days of steam, soon learn how very unreliable any forecast of the movements of ships can be. This, together with the uncertainty and irregularity of the number of arrivals in any given time, make the work at the station a succession of waitings and hurrys. There is, in consequence, much spare time for the Medical Officers and for the Inspectors, which, however, must be spent in the office, and it is in connection with this spare time that I wish to make a suggestion, viz., that, for the good of the Boarding Medical Officers, and with the object of profitably occupying this time, the Committee be asked to consider the advisability of fitting up a small bacteriological laboratory at the office on Princes Pier.* As instance of the subject for study, one might mention examinations of the shell-fish, sea-weed, &c., of the foreshores, and, for practice, the bacteriological diagnosis of enteric fever, diphtheria, tuberculosis, &c., whenever available.

With regard to the Inspectors, it is less easy to suggest a profitable occupation other than study, but, unfortunately, there seems to be a very distracting element in this waiting, which makes practical work more welcome and likelier to be persevered in than study. One might suggest photography as a practical subject, which could be very suitably applied to an Inspector's work on board ship—*e.g.*, an "exposure" taken of any notable conditions found on a vessel on its arrival would place the matter beyond dispute, and be most useful in many ways. The Inspectors would then also be able very materially to assist with any special report which might be required.

(Signed) GEO. N. WILSON.

Onion Ships.

During the autumn months, it would appear that there exists a not inconsiderable traffic in onions with certain parts of the north of France, and these onion ships, in addition to their crews, carry as passengers a relatively large number of onion sellers, who are Bretons, and who live on board during the ships' stay in the Clyde.

There would appear to be no provision on board these vessels for passengers. They usually sleep anywhere on deck, or in the holds, according to the weather conditions, and there would appear to be no latrine accommodation either for crew or passengers. Further, the decks are usually kept in a filthy condition with vegetable and other refuse.

* This is, I think, an excellent suggestion, worthy of careful consideration.—A. K. C.

SECTION IV.

(E) AN ACCOUNT OF THE HOUSE ACCOMMODATION OF THE LABOURING CLASSES IN THE BURGH, AND OF ANY PROCEEDINGS UNDER THE HOUSING OF THE WORKING CLASSES ACT OR OTHERWISE.

(A.) GLASGOW POLICE (AMENDMENT) ACT, 1890 (SECTION 32).

No action was taken under this section during 1905, and the total number of houses closed under its operation remains as at 31st December, 1904, viz.:—

SIZE OF HOUSE.					
1 apartment.	2 apartments.	3 apartments.	4 apartments.	House and Shop.	Total.
585	265	10	2	8	870

(B.) HOUSING OF THE WORKING CLASSES ACT, 1890, PART II. (SECTION 30).

During 1905, representations under Section 30 of this Act were submitted to the Local Authority affecting tenements in the following wards:—

Wards.	No. of Representations.
I.—Dalmarnock, ...	1
II.—Calton, ...	26
III.—Mile-end, ...	5
IV.—Whitevale, ...	3
V.—Dennistoun, ...	3
VII.—Cowlairs, ...	1
VIII.—Townhead, ...	7
IX. } —Blackfriars, ...	4
IXa. }	6
X.—Exchange, ...	1
XI.—Blythswood, ...	1
XII.—Broomielaw, ...	1
XIII.—Anderston, ...	7
XIV.—Sandyford, ...	3
XV.—Park, ...	1
XVI.—Cowcaddens, ...	10
XVII.—Woodside, ...	1
XVIII.—Hutchesontown, ...	1
XIX.—Gorbals, ...	10
XX.—Kingston, ...	8

Making a total of ... 100 in all,

affecting 931 houses, of which 524 were of one apartment, 371 of two apartments, 27 of three apartments, and 9 of four apartments.

148 of the one-apartment houses, 71 of the two apartments, 4 of the three apartments, and one of the four apartments were empty at the time of representation, and the remaining 707 houses were occupied by 1,770 adults and 807 children—a total of 2,577 persons, giving a ratio of 3·6 persons per house.

787 adults and 268 children were resident in 376 houses of one apartment, giving an average of 2·7 persons per each single-apartment house. 845 adults and 491 children dwelt in the 300 two-apartment houses, giving an average of 4·3 persons per each two-apartment house, or 2·2 per room.

91 adults and 37 children were housed in 23 houses of three apartments, giving an average of 5·6 persons per three-apartment house, or 1·9 per room; and 58 persons dwelt in eight inhabited four-apartment houses, giving an average of 7·3 persons per four-apartment house, or 1·8 per room.

TABLE A.—STATEMENT of the NUMBER of HOUSES and of the PERSONS affected in each WARD by REPRESENTATIONS submitted during 1905.

Date.	Ward.	Address.	HOUSES.				POPULATION.									
			1.	2.	3.	4.	1 apt.		2 apts.		3 apts.		4 apts.		Total.	
							Ad.	Ch.	Ad.	Ch.	Ad.	Ch.	Ad.	Ch.		
Mar. 1	I.	33 Franklin Street, ...	^o (1) 5	2	...	...	7	8	4	4	...	...	...	...	23	
		Total Occupied Houses,	4	2	...	...										
Mar. 1	II.	121, 121a Green Street, ...	4	3	...	...	6	...	6	9	...	...	...	...	21	
April 19	"	24 Millroad Street, ...	2	...	...	...	4	3	...	...	...	...	...	...	7	
" "	"	5 Charlotte Street, ...	⁽²⁾ 4	...	...	...	3	1	...	...	...	...	...	...	4	
" "	"	156 Gallowgate, ...	⁽⁴⁾ 5	...	...	...	2	...	...	...	...	...	...	...	2	
May 10	"	16 Landressy Street, ...	...	⁽²⁾ 12	...	...	...	...	28	11	...	...	...	...	39	
" 24	"	184 Gallowgate, ...	⁽²⁾ 2	6	...	...	...	...	8	8	...	...	...	...	16	
" 31	"	4 Gibson Street, ...	⁽⁴⁾ 22	1	1	...	34	11	2	...	4	1	...	...	52	
June 14	"	23 Bell Street, ...	⁽⁴⁾ 4	⁽¹⁾ 1	...	...	...	...	...	...	...	...	...	...	...	
" "	"	83 Kirk Street, ...	5	...	...	...	12	11	...	...	...	...	...	...	23	
" "	"	13 Well Street, ...	⁽²⁾ 3	2	...	...	1	...	4	4	...	...	...	...	9	
" "	"	332 Gallowgate, ...	5	...	...	...	9	1	...	...	...	...	...	...	10	
" "	"	374 Do., ...	3	6	...	...	5	...	18	9	...	...	...	...	32	
" "	"	3, 5, 7 Buchanan Lane, ...	...	6	...	...	...	...	19	7	...	...	...	...	26	
" "	"	338½ Gallowgate, ...	⁽¹⁾ 2	...	...	...	4	...	...	...	...	...	...	...	4	
July 5	"	34 Stevenson Street, ...	1	⁽³⁾ 6	⁽¹⁾ 2	...	2	1	6	6	3	...	...	...	18	
" "	"	16 Do., ...	...	1	...	...	...	...	6	4	...	...	...	...	10	
August 9	"	69 Green Street, ...	1	2	...	...	2	1	7	6	...	...	...	...	16	
" 23	"	9 Struthers Street, ...	4	1	...	...	9	3	4	...	...	...	...	...	16	
" "	"	43 Do., ...	6	⁽¹⁾ 3	...	...	11	2	6	4	...	...	...	...	23	
" "	"	49 Do., ...	⁽¹⁾ 7	...	...	...	13	...	...	...	...	...	...	...	13	
Sept. 6	"	2-8 Marshall Street, ...	4	⁽²⁾ 9	...	...	8	4	19	12	...	...	...	...	43	
" "	"	224 Moncur Street, ...	⁽²⁾ 5	3	1	...	8	3	7	4	3	3	...	...	28	
" "	"	226 Do., ...	⁽¹⁾ 8	1	⁽¹⁾ 3	...	17	2	2	1	6	5	...	...	33	
" "	"	83 King Street, ...	⁽¹⁾ 9	...	...	...	17	7	...	...	...	...	...	...	24	
Dec. 6	"	46-60 Cumberland Street, ...	⁽¹⁾ 3	⁽⁶⁾ 27	...	...	7	1	37	36	...	...	...	...	81	
" 20	"	238 Main Street, Bridgeton, ...	2	...	...	...	4	2	...	...	...	...	...	...	6	
		Total Houses, ...	111	90	7	...	178	53	179	121	16	9	...	...	556	
		Total Empty Houses, ...	25	15	2	...										
		Total Occupied Houses,	86	75	5	...										

* The small figures in brackets show the number of empty houses of each size at each address at the time of representation.

REPRESENTATIONS—*Continued.*

Date.	Ward.	Address.	HOUSES.				POPULATION.										Total.
			1.	2.	3.	4.	1 apt.		2 apts.		3 apts.		4 apts.				
							Ad.	Ch.	Ad.	Ch.	Ad.	Ch.	Ad.	Ch.			
Jan. 4	III.	96-114 Great Eastern Road,	2	⁽¹⁾ 2	...	...	2	...	2	...	...	...	...	...	...	4	
" "	"	106 Do.,	⁽⁸⁾ 9	...	...	...	1	...	...	...	...	...	...	...	...	1	
Feb. 15	"	19 Greenvale Street,	...	1	...	...	...	...	2	6	...	...	...	...	...	8	
April 19	"	10-18 Winning Row,	4	3	...	...	4	1	9	12	...	...	...	...	...	26	
May 31	"	Red Row, Carntyne Road,	⁽⁵⁾ 12	⁽²⁾ 2	...	...	13	21	...	...	...	...	...	...	...	34	
		Total Houses, ...	27	8	...	...	20	22	13	18	...	...	...	...	...	73	
		Total Empty Houses, ...	13	3	...	...											
		Total Occupied Houses,	14	5	...	...											
May 17	IV.	80 East John Street,	7	1	...	...	11	6	2	...	...	...	...	...	...	19	
June 21	"	7 Little Dovehill,	4	...	...	...	9	2	...	...	...	...	...	...	...	11	
" "	"	8 East Campbell Street,	2	...	...	...	4	1	...	...	...	...	...	...	...	5	
		Total Occupied Houses,	13	1	...	...	24	9	2	...	...	...	...	...	...	35	
Jan. 4	V.	146 Drygate,	⁽²⁾ 2	2	...	...	...	...	5	1	...	...	...	...	...	6	
May 10	"	4-6 Ladywell,	⁽¹⁾ 4	2	...	...	4	1	6	2	...	...	...	...	...	13	
" "	"	11 Wright Street,	...	1	...	...	...	...	2	3	...	...	...	...	...	5	
		Total Houses, ...	6	5	...	...	4	1	13	6	...	...	...	...	...	24	
		Total Empty Houses, ...	3	...	...	...											
		Total Occupied Houses,	3	5	...	...											
Mar. 29	VII.	60-70 Old Keppochhill Road,	4	⁽²⁾ 9	...	...	7	3	21	11	...	...	...	...	...	42	
		Total Empty Houses, ...	...	2	...	...											
		Total Occupied Houses,	4	7	...	...											
Feb. 1	VIII.	68 Parliamentary Road,	5	6	...	...	11	5	20	11	...	...	...	...	...	47	
" 15	"	21 Parson Street,	⁽⁷⁾ 14	...	...	...	14	...	...	...	...	...	...	...	...	14	
" "	"	20 Barony Street,	6	2	...	...	8	7	4	3	...	...	...	...	...	22	
Aug. 9	"	31 Weaver Street,	...	⁽¹⁾ 2	...	...	...	...	3	2	...	...	...	...	...	5	
Sept. 22	"	38 St. James' Road,	⁽³⁾ 6	⁽⁴⁾ 6	...	...	5	2	4	6	...	...	...	...	...	17	
" "	"	196 Stirling Road,	...	2	...	4	...	...	5	1	...	...	22	7	...	35	
" "	"	17 Glebe Street,	⁽²⁾ 2	⁽²⁾ 2	...	...	...	...	...	...	...	...	...	...	...	...	
		Total Houses, ...	33	20	...	4	38	14	36	23	...	...	22	7	140		
		Total Empty Houses, ...	12	7	...	...											
		Total Occupied Houses,	21	13	...	4											

* The small figures in brackets show the number of empty houses of each size at each address at the time of representation.

REPRESENTATIONS—Continued.

Date.	Ward.	Address.	HOUSES.				POPULATION.									
			1.	2.	3.	4.	1 apt.		2 apts.		3 apts.		4 apts.		Total.	
							Ad.	Ch.	Ad.	Ch.	Ad.	Ch.	Ad.	Ch.		
Feb. 1	IX.	15 Tarbet Street, ...	[°] (3) 4	(5) 6	...	...	3	...	4	1	...	...	...	...	8	
" "	"	29 Deanside Lane, ...	...	4	...	...	...	...	9	7	...	...	...	...	16	
" "	"	30 North Portland Street,	...	(1) 4	...	...	...	...	6	2	...	...	...	...	8	
May 17	"	14 Shuttle Lane, ...	2	(1) 2	...	...	4	...	8	4	...	...	...	...	16	
		Total Houses, ...	6	16	...	...	7	...	27	14	...	...	...	...	48	
		Total Empty Houses, ...	3	7	...	...										
		Total Occupied Houses,	3	9	...	...										
March 15	IXA.	50 Crown Street, S.S., ...	...	12	...	...	...	...	42	14	...	...	...	...	56	
April 1	"	39 Do., ...	9	1	2	...	20	3	2	1	5	4	...	...	35	
" 19	"	52 Rose Street, S.S., ...	...	16	...	...	...	...	34	19	...	...	...	...	53	
May 10	"	5 Thistle Street, S.S., ...	(1) 5	(2) 9	(1) 3	...	8	3	19	8	9	3	...	...	50	
Nov. 1	"	22 Crown Street, S.S. ...	...	6	...	...	...	...	23	6	...	...	...	...	29	
" "	"	30-40 Do., ...	1	(1) 2	...	...	4	1	3	...	...	...	...	...	8	
		Total Houses, ...	15	46	5	...	32	7	123	48	14	7	...	...	231	
		Total Empty Houses, ...	1	3	1	...										
		Total Occupied Houses,	14	43	4	...										
April 19	X.	32 Stockwell Street, ...	(1) 7	(1) 6	...	...	14	6	17	8	...	...	...	...	45	
		Total Empty Houses, ...	1	1	...	...										
		Total Occupied Houses,	6	5	...	...										
May 10	XI.	77 Renfrew Street, ...	...	2	...	...	...	...	7	2	...	...	...	...	9	
April 19	XII.	20 Brown Street, ...	(2) 9	3	...	...	16	2	7	3	...	...	...	...	28	
		Total Empty Houses, ...	2	...	...	...										
		Total Occupied Houses,	7	3	...	...										
March 1	XIII.	58 Clyde Street, Anderston,	1	4	...	...	3	...	7	3	...	...	...	...	13	
" 15	"	91 Finnieston Street, ...	6	2	...	...	11	4	4	5	...	...	...	...	24	
" "	"	111 Do., ...	(2) 4	2	...	...	4	...	...	...	...	...	...	...	4	
" 29	"	16 Sharp's Lane, ...	...	(1) 12	...	...	...	...	37	16	...	...	...	...	53	
Dec. 6	"	42 Clyde Street, Anderston,	1	...	...	...	2	...	...	...	...	...	...	...	2	
" 20	"	53 Do., ...	(1) 3	...	...	...	6	2	...	...	...	...	...	...	8	
" "	"	37 Do., ...	...	(5) 12	...	...	...	...	25	16	...	...	...	...	41	
		Total Houses, ...	15	32	...	...	26	6	73	40	...	...	...	...	145	
		Total Empty Houses, ...	3	6	...	...										
		Total Occupied Houses,	12	26	...	...										

* The small figures in brackets show the number of empty houses of each size at each address at the time of representation.

+ Closed previously under the Glasgow Police (Amendment) Act. 1890 (Sec. 32).

REPRESENTATIONS—Continued.

Date.	Ward.	Address.	HOUSES.				POPULATION.									
			1.	2.	3.	4.	1 apt.		2 apts.		3 apts.		4 apts.		Total.	
							Ad.	Ch.	Ad.	Ch.	Ad.	Ch.	Ad.	Ch.		
Feb. 15	XIV.	14 School Wynd, ...	⁽¹⁾ 7	7	...	...	12	7	20	15	...	...	...	...	54	
March 15	„	20 Do., ...	...	2	...	...	...	...	5	...	...	...	...	...	5	
April 1	„	51 West Bothwell Street, ...	⁽¹⁾ 4	...	...	...	7	3	...	...	...	...	...	...	10	
		Total Houses, ...	11	9	...	...	19	10	25	15	...	...	...	...	69	
		Total Empty Houses, ...	2	...	...	...										
		Total Occupied Houses,	9	9	...	...										
June 28	XV.	95 Thistle Street, ...	...	⁽¹⁾ 2	...	...	...	...	5	...	...	...	...	...	5	
		Total Empty Houses, ...	...	1	...	...										
		Total Occupied Houses,	...	1	...	...										
Jan. 18	XVI.	41 Burnside Street, ...	⁽³⁾ 6	⁽³⁾ 10	...	...	7	4	24	15	...	...	...	...	50	
„ „	„	13 Roslin Place, ...	⁽⁶⁾ 8	...	...	...	4	1	...	...	...	...	...	...	5	
Feb. 1	„	9 Water Street, ...	...	⁽¹⁾ 4	...	...	...	...	12	5	...	...	...	...	17	
„ „	„	71 Stewart Street, ...	⁽⁹⁾ 22	2	...	...	31	6	4	8	...	...	...	...	49	
„ „	„	77 Do., ...	⁽¹⁹⁾ 38	⁽³⁾ 7	...	...	38	18	8	10	...	...	...	...	74	
„ „	„	105 Stirling Street, ...	⁽¹⁵⁾ 34	...	...	...	37	14	...	...	...	...	...	...	51	
„ „	„	72-76 Muse Lane, ...	⁽⁵⁾ 18	⁽²⁾ 7	...	...	35	10	19	11	...	...	...	...	75	
Mar. 1	„	1 Water Street, ...	⁽¹⁾ 7	2	...	...	14	1	6	6	...	...	...	...	27	
„ 29	„	64 Ann Street, ...	⁽²⁾ 5	⁽¹⁾ 3	...	...	7	2	4	6	...	...	...	...	19	
„ „	„	31 Clyde Street, ...	⁽⁵⁾ 18	⁽³⁾ 9	...	...	26	10	12	7	...	...	...	...	55	
		Total Houses, ...	156	44	...	...	199	66	89	68	...	...	...	...	422	
		Total Empty Houses, ...	65	13	...	...										
		Total Occupied Houses,	91	31	...	...										
April 19	XVII.	107 Hopehill Road, ...	⁽²⁾ 8	⁽²⁾ 11	...	...	12	1	27	12	...	...	...	...	52	
		Total Empty Houses, ...	2	2	...	...										
		Total Occupied Houses,	6	9	...	...										
Mar. 1	XVIII	15 Commercial Road, ...	4	10	...	...	8	6	32	17	...	...	...	...	63	

* The small figures in brackets show the number of empty houses of each size at each address at the time of representation.

REPRESENTATIONS—Continued.

Date.	Ward.	Address.	HOUSES.				POPULATION.										Total.
			1.	2.	3.	4.	1 apt.		2 apts.		3 apts.		4 apts.				
							Ad.	Ch.	Ad.	Ch.	Ad.	Ch.	Ad.	Ch.			
Feb. 15	XIX.	7 Surrey Street, ...	⁽²⁾ 8	6	...	...	12	3	23	12	...	...	...	...	...	...	50
May 10	"	80 Rutherglen Road, ...	4	...	...	...	8	4	...	...	...	...	...	...	...	...	12
June 28	"	5-7 Main Street, ...	⁽¹⁾ 4	2	2	...	8	4	6	...	4	5	...	...	...	...	27
" "	"	9-11 Do., ...	⁽⁶⁾ 21	...	...	...	49	10	...	...	...	...	...	...	...	...	59
" "	"	2-4 Adelphi Street, ...	...	3	3	1	...	...	10	2	13	1	10	2	...	...	38
" "	"	8-12 Do., ...	4	⁽⁵⁾ 14	⁽²⁾ 9	⁽¹⁾ 1	8	3	36	16	38	15	...	...	...	...	116
Sept. 22	"	9 Hospital Street, ...	...	⁽⁴⁾ 12	...	...	...	...	26	9	...	...	...	...	...	...	35
" "	"	65 Do., ...	...	6	...	...	...	...	15	17	...	...	...	...	...	...	32
" "	"	176 Main Street, ...	⁽⁵⁾ 32	...	...	...	50	14	...	...	...	...	...	...	...	...	64
Total Houses, ...			73	43	14	2	135	38	116	56	55	21	10	2	433		
Total Empty Houses, ...			14	9	2	1											
Total Occupied Houses,			59	34	12	1											
Jan. 18	XX.	80 Nelson Street, ...	2	...	...	...	4	...	...	...	...	...	...	...	...	...	4
" "	"	90 Do., ...	2	...	...	...	2	...	...	...	...	...	...	...	...	...	2
Feb. 15	"	174 Centre Street, ...	2	...	...	...	3	1	...	...	...	...	...	...	...	...	4
May 10	"	29 Clyde Place, ...	3	2	1	...	7	4	5	...	6	...	...	...	...	...	22
Nov. 1	"	84 Centre Street, ...	2	4	...	...	4	2	13	6	...	...	...	...	...	...	25
" "	"	76 Do., ...	2	⁽¹⁾ 2	...	...	4	1	2	2	...	...	...	...	...	...	9
" "	"	71 Do., ...	...	⁽¹⁾ 4	...	3	...	...	9	17	...	...	15	2	...	...	43
" "	"	2-14 Francis Street, ...	⁽¹⁾ 8	...	...	...	17	8	...	...	...	...	...	...	...	...	25
Total Houses, ...			21	12	1	3	41	16	29	25	6	...	15	2	134		
Total Empty Houses, ...			1	2	...	...											
Total Occupied Houses,			20	10	1	3											

* The small figures in brackets show the number of empty houses of each size at each address at the time of representation.

Table B is a summary of the details presented in Table A.

TABLE B.—SUMMARY of the FOREGOING REPRESENTATIONS.

NAME OF WARD.	No. of Representations.	SIZE OF HOUSES.				POPULATION.										
						1 apart.		2 apart.		3 apart.		4 apart.		GRAND TOTAL.		
		1	2	3	4	Ad.	Ch.	Ad.	Ch.	Ad.	Ch.	Ad.	Ch.	Ad.	Ch.	Total.
I. Dalmarnock, ...	1	5	2	—	—	7	8	4	4	—	—	—	—	11	12	23
II. Calton, ...	26	111	90	7	—	178	53	179	121	16	9	—	—	373	183	556
III. Mile-end, ...	5	27	8	—	—	20	22	13	18	—	—	—	—	33	40	73
IV. Whitevale, ...	3	13	1	—	—	24	9	2	—	—	—	—	—	26	9	35
V. Dennistoun, ...	3	6	5	—	—	4	1	13	6	—	—	—	—	17	7	24
VII. Cowlairs, ...	1	4	9	—	—	7	3	21	11	—	—	—	—	28	14	42
VIII. Townhead, ...	7	33	20	—	4	38	14	36	23	—	—	22	7	96	44	140
IX. } Blackfriars, { ...	4	6	16	—	—	7	—	27	14	—	—	—	—	34	14	48
IXA. } ...	6	15	46	5	—	32	7	123	48	14	7	—	—	169	62	231
X. Exchange, ...	1	7	6	—	—	14	6	17	8	—	—	—	—	31	14	45
XI. Blythswood, ...	1	—	2	—	—	—	—	7	2	—	—	—	—	7	2	9
XII. Broomielaw, ...	1	9	3	—	—	16	2	7	3	—	—	—	—	23	5	28
XIII. Anderston, ...	7	15	32	—	—	26	6	73	40	—	—	—	—	99	46	145
XIV. Sandyford, ...	3	11	9	—	—	19	10	25	15	—	—	—	—	44	25	69
XV. Park, ...	1	—	2	—	—	—	—	5	—	—	—	—	—	5	—	5
XVI. Cowcaddens, ...	10	156	44	—	—	199	66	89	68	—	—	—	—	288	134	422
XVII. Woodside, ...	1	8	11	—	—	12	1	27	12	—	—	—	—	39	13	42
XVIII. Hutchesontown, ...	1	4	10	—	—	8	6	32	17	—	—	—	—	40	23	63
XIX. Gorbals, ...	10	73	43	14	2	135	38	116	56	55	21	10	2	316	117	433
XX. Kingston, ...	8	21	12	1	3	41	16	29	25	6	—	15	2	91	43	134
	100	524	371	27	9	787	268	845	491	91	37	47	11	1,770	807	2,577
Total Empty Houses, ...		148	71	4	1											
„ Occupied Houses, ...		376	300	23	8	1,055 persons		1,336 persons		128 persons		58 persons				
Persons per House in Occupied Houses,						= 2·7		= 4·3		= 5·6		= 7·2				
„ „ Room, ...						2·7		2·2		1·9		1·8				

Sublet Houses.

Among the houses dealt with by representation during the year, 92 were "sub-let," at rents varying from 4s. 6d. to 7s. per week. 42 were single-apartment houses, and 50 were of two apartments. Of this total of 92, no fewer than 45, or 49 per cent., were in Ward II. (Calton), while 39, or 42 per cent., were in IXA., or its immediate vicinity. The following summary (Table C) shows the wards and the addresses at which these houses were situated:—

TABLE C.

Ward.	Address.	1 Apt.	2 Apts.
II. Calton, ...	121-121A Green Street, ...	1	1
	4 Gibson Street, ...	22	1
	23 Bell Street, ...	4	1
	2-8 Marshall Street, ...	4	9
		31	12
		43	
IV. Whitevale, ...	8 East Campbell Street,	2	—
		2	
VIII. Townhead, ...	68 Parliamentary Road,	4	3
		7	
IXA. Blackfriars, ...	52 Rose Street, S.S., ...	—	13
	5 Thistle Street, ...	4	10
		4	23
		27	
X. Exchange, ...	32 Stockwell Street, ...	1	—
		1	
XIX. Gorbals, ...	9 Hospital Street, ...	—	12
		12	
		Total, 92	

Results of Representations.

Before considering the action which followed the representations submitted during the year, it will be convenient to summarise shortly the results of all the representations presented since systematic procedure was begun under the Housing of the Working Classes Act in 1902. The following Table (D) brings the record down to February, 1906:—

TABLE D.—SUMMARY of REPRESENTATIONS under the HOUSING of the WORKING CLASSES ACT, with RESULTS as at FEBRUARY, 1906.

Year.	No. of Representations.	Persons affected.	Removed.				Agreed to Remove.				Repaired.	Failed to obtain Closing Order.	Pending.
			1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.			
1902*	3	185	1	2	—	—	—	—	—	—	—	—	—
1903*	31	1,103	—	6	13†	1	—	—	—	—	—	1‡	11§
1904	81||	1,717	—	—	18	17	11	6	2	1	5	—	14
—	115	3,005	1	8	31	18	11	6	2	1	5	1	25
1905	100	2,577	—	—	—	14	10	11	2	—	7	1¶	53**
Total,	215	5,582	1	8	31	32	21	17	4	1	12	2	78

* For details, see pp. 101-2 of 1903 Report.

† In 4, 6, 8 Water Street and 538-546 Dobbie's Loan, represented together, the tenement at 8 Water Street only was removed.

‡ 75 Brown Street, Anderston.

§ See footnote (†) regarding the other numbers at Water Street and Dobbie's Loan.

|| Owing to separate ownership, these 81 Representations refer to only 74 separate or "grouped" addresses.

¶ 50 Crown Street.

** 100 Representations, owing to separate ownership, affected 98 separate or "grouped" addresses.

Displacements in 1905.

These may most conveniently be considered in order of the year of representation.

From 1903 Representations.

The tenement shown in Table (D) as having been represented in 1903 and removed in 1905 was at 121 Drygate. When this tenement was represented, 2 single-apartment and 10 two-apartment houses were occupied. At the time of removal only two of the two-apartment houses were occupied, and of those two families, one was traced to another two-apartment house, but the other gave an address to which they did not remove.

From 1904 Representations.

Table D shows 17 tenements represented in 1904 as removed during 1905. The details of these are shown in the following Table (E):—

TABLE E.—DISPLACEMENTS in 1905 from TENEMENTS REPRESENTED in 1904.

In the following tenements represented during 1904, proceedings terminated during 1905, and the buildings were either removed or in course of removal:—

WARD.	ADDRESS.	HOUSES.				POPULATION.		Total Persons.
		1 Apt.	2 Apts.	3 Apts.	4 Apts.	Adults.	Children.	
I. Dalmarnock,	21 Dale Street, Bridgeton,	11	5	...	...	27	5	32
II. Calton,	15 Abercromby Street, ...	8	8	...	...	...	...	...
"	27 Charlotte Street, ...	4	10	1	...	25	20	45
"	55 Green Street, ...	1	1	...	...	4	2	6
"	21 Cragnestock Street, ...	8	...	...	...	15	6	21
III. Mile-end,	190 Westmuir Street, ...	...	8	...	...	21	14	35
"	88-90 Great Eastern Road, ...	13	...	...	...	...	...	...
"	28-38 Summer Street, ...	...	1	...	...	4	...	4
IV. Whitevale,	37-39 Coalhill Street, ...	2	2	...	...	9	8	17
IX. Blackfriars,	118 George Street, ...	1	2	...	...	5	6	11
"	118 " ...	5	1	...	...	9	...	9
XII. Broomielaw,	3 Carrick Street, ...	4	...	...	...	4	2	6
"	29 West College Street, ...	2	9	...	...	32	20	52
XVI. Cowcaddens,	602 Dobbie's Loan, ...	2	...	...	...	3	2	5
"	10 Renfrew Street, ...	1	2	2	...	11	6	17
XIX. Gorbals,	54 Portugal Street, ...	...	7	...	...	12	8	20
"	24 Nicholson Street, ...	3	2	1	...	16	4	20
		65	58	4	...	197	103	300

Difficulty is invariably experienced in endeavouring to follow the displaced tenants into their new addresses. Change of residence is frequent among the class of tenants inhabiting these properties, and the houses are seldom occupied by the same tenants at the time of representation and demolition, unless the one almost immediately follows the other. Moreover, when demolition has been agreed upon, after an interval incoming tenants are not found in numbers equal to those removing, and the number of tenants who can finally be followed is usually much less than those primarily affected.

In addition to this, it is by no means uncommon to find tenants unwilling to disclose too accurately their next address.

As a result of one or other of these causes, it was only possible to follow some of the tenants of 13 out of the 17 tenements removed, and 62 out of a total of 127 families originally represented. In Table F the details of these changes are shown. The 27 families originally in one-apartment houses became 24,

the 32 two-apartment tenants became 23, and the 3 three-apartment tenants became 2 at the new addresses. That many of the tenants went to better houses is borne out by a comparison of the average rentals in the old and new addresses. In the old addresses the one-apartment houses cost 7s., in the new, 8s. 3d.; and a two-apartment in the old addresses cost 8s. 6d., and in the new, 11s.; while the three-apartment rentals increased from 12s. to 19s. 5d.

ADDRESS.	FAMILIES.						PERSONS.						NOT TRACED.	
	OLD ADDRESS.			NEW ADDRESS			OLD ADDRESS.			NEW ADDRESS.				
	1 Apt.	2 Apts.	3 Apts.	1 Apt.	2 Apts.	3 Apts.	1 Apt.	2 Apts.	3 Apts.	1 Apt.	2 Apts.	3 Apts.	Families.	Persons.
21 Dale Street, Bridgeton,	3	2	...	4	1	—	6	5	...	7	4	...	...	...
27 Charlotte Street,	3	...	...	1	2	...	11	...	...	4	7	...	...	...
21 Craignestock Street,	6	...	...	5	...	...	18	...	...	16	...	...	1*	2
190 Westnuir Street,	...	8	...	...	5	1	...	37	...	...	25	3	2	9
28-38 Summer Street,	...	1	...	...	...	...	...	...	...	...	...	...	1	4†
37-39 Coalhill Street,	2	1	...	...	1	...	4	4	...	...	4	...	2	4
118 George Street,	5	2	...	5	2	...	8	7	...	10	5	...	...	...
3 Carrick Street,	2	...	...	1	1	...	4	...	...	1	3	...	...	...
29 West College Street,	1	7	...	1	6	...	4	31	...	5	22	...	1‡	4
602 Dobbie's Loan,	2	...	...	2	...	...	2	...	...	2	...	...	...	...
10 Renfrew Street,	1	2	2	2	2	1	4	2	4	2	5	3	...	...
54 Portugal Street,	...	7	...	1	2	...	...	30	...	4	10	...	4	16
24 Nicholson Street,	2	2	1	2	1	...	4	8	6	9	2	...	2	7
	27	32	3	24	23	2	65	124	10	60	87	6	13	46

* Mother to "Model;" son to "Model."

† Gone to Ireland.

‡ To farmed-out house for first time.

TABLE F.—STATEMENT of RESULTS of DISPLACEMENTS in 1905 from TENEMENTS represented during 1904 where these were obtainable.

The change in the size of the new house is, however, worthy of notice, because, for the first time in the record of these displacements, the proportion of families in one-apartment houses at new addresses exceeds that occupying similar-sized houses at the old.

Thirteen of the families gave wrong addresses, and were not traced. One tenant left for Ireland, and one tenant from West College Street went to a farmed-out house for the first time. One family, consisting of mother and son, was broken up—the mother going to Moncur Street “Model,” and the son to Great Hamilton Street “Model.” On enquiry, however, it was ascertained that this family frequently stayed in “Models,” and returned to a house of their own at intervals. This woman has since been dismissed from Moncur Street Home for drinking, and has now been lost sight of, but the son is still in Great Hamilton Street “Model.”

	PERCENTAGE OF HOUSES.		
	1 Apartment.	2 Apartments.	3 Apartments.
Old Addresses, ...	44	51	5
New Addresses, ...	49	47	4
Average Rental, Old Address, ...	7/0	8/6	12/0
„ New „	8/3	11/0	19/5

In order to ascertain the precise character of the changes indicated by the increase of one-apartment occupancies, the following recasting of the figures was made:—

	OLD ADDRESS.	NEW ADDRESS.			Lost.
	Number of Families.	Number of Families in—			
		1 Apartment.	2 Apartments.	3 Apartments.	
1 Apartment, ...	27	15	6	...	6
2 ,, ...	32	10	17	1	4

showing that all the one-apartment families benefit. On the other hand, 10 families, originally in two-apartment houses, were rehoused in one-apartments, and, generally, the individual changes which these families experienced are as follows:—

COMPARATIVE CUBIC SPACE AND RENTAL OF BOTH HOUSES WHERE 2-APARTMENT TENANTS REMOVED TO 1-APARTMENT HOUSES.

	CUBIC SPACE.			RENTAL.	
	Old. Cub. feet.	New. Cub. feet.		Old. s. d.	New. s. d.
1.	1,718	1,500	...	8 0	7 6
2.	2,000	1,415	...	8 4	10 0
3.	No ticket	...	...	9 5	10 0
4.	No ticket	...	...	11 6	10 10
5.	1,000	1,059	...	7 0	9 0
6.	1,300	874	...	8 0	7 0
7.	1,600	1,400	...	9 6	10 6
8 and 9.	No information.				
10.	No ticket	...	...	10 6	8 0

From 1905 Representations.

On again referring to Table D, it will be observed that, of the tenements represented in 1905, 14 were finally disposed of during the year. Certain details of those are given in the following Table (G):—

TABLE G.—DISPLACEMENTS from TENEMENTS REPRESENTED in 1905.

In the following tenements represented during 1905, proceedings had terminated during the year, and the buildings were either removed or in course of removal at its close:—

WARD.	ADDRESS.	HOUSES.		POPULATION.		TOTAL PERSONS.
		1 apt.	2 apts.	Adults.	Children.	
II. Calton, ...	121-121A Green Street, ...	4	3	12	9	21
" " ...	5 Charlotte Street,* ...	4	—	3	1	4
" " ...	156 Gallowgate,* ...	5	—	2	—	2
" " ...	184 do., ...	2	6	28	11	39
III. Mile-end. ...	96-104 Great Eastern Road,* ...	2	2	4	—	4
" " ...	106 do., * ...	9	—	1	—	1
" " ...	19 Greenvale Street,* ...	—	1	2	6	8
VII. Cowlairs, ...	60-70 Old Keppochhill Road,* ...	4	9	28	14	42
IX. Blackfriars, ...	30 North Portland Street, ...	—	4	6	2	8
" " ...	32 Stockwell Street, ...	7	6	31	14	45
XIII. Anderston, ...	16 Sharp's Lane, ...	—	12	37	16	53
XIV. Sandyford, ...	51 West Bothwell Street, ...	4	—	7	3	10
XVI. Cowcaddens, ...	64 Ann Street, Port-Dundas, ...	5	3	11	8	19
XX. Tradeston, ...	80 Nelson Street,* ...	2	—	4	—	4
		48	46	176	84	260

* Tenants displaced before notice given.

For reasons similar to those already mentioned regarding the 1904 displacements, some difficulty was experienced in following up the displaced tenants. In several of these addresses (7 in number, and shown on Table E), the tenants were displaced before notice was given. The tenants in the remaining seven properties were followed up, and the results of the displacement are shown on Table H.

TABLE H.—STATEMENT of RESULTS of DISPLACEMENTS in 1905 from TENEMENTS REPRESENTED during 1905 where these were obtainable.

ADDRESS:	FAMILIES.						PERSONS.						Not Traced.	
	Old Address.			New Address.			Old Address.			New Address.				
	1 apt.	2 apts.	3 apts.	1 apt.	2 apts.	3 apts.	1 apt.	2 apts.	3 apts.	1 apt.	2 apts.	3 apts.	Families.	Persons.
121-121A Green Street, Calton,	4	2	...	3	2	...	12	9	...	8	12	...	1	1
184 Gallowgate, ...	...	3	...	...	2	...	...	12	...	...	9	...	1	3
30 North Portland Street, ...	...	3	...	3	...	...	...	9	...	9	...	...	...	...
32 Stockwell Street, ...	6	6*	...	5	2	1	19	26	...	16	8	10	4	11
16 Sharp's Lane, ...	...	10	...	...	9	...	...	54	...	...	48	...	1	6
51 West Bothwell Street, ...	4	...	...	3	1	...	11	...	...	6	5	...	...	...
64 Ann Street, Port-Dundas,	14	4	...	7	10	...	32	19	...	14	34	...	1	3
	28	28	...	21	26	1	74	129	...	53	116	10	8	24

* One family (consisting of a mother and daughter) went into lodgings for the first time.

The change in the nature of the occupancy in those families which could be traced will be made clear by the following Table, which shows the percentage of houses of different sizes in the old and new addresses :—

	PERCENTAGE OF HOUSES.		
	1 Apartment.	2 Apartments.	3 Apartments.
Old Addresses, ...	50	50	...
New Addresses, ...	44	54	2

On the whole, therefore, the tendency has been to seek ampler accommodation.

The total displacements during the year is therefore as follows :—

TABLE J.

	HOUSES.			POPULATION.		
	1	2	3	Adults.	Children.	Total.
Represented during 1903, ...	...	2	...	6	...	6
“ “ 1904, ...	65	58	4	197	103	300
“ “ 1905, ...	48	46	...	176	84	260
	113	106	4	379	187	566

OCCUPATION OF DISPLACED TENANTS.

1904 Representations Displaced in 1905.

These may be classified as under:—

1. Labourers, all classes (Males), ...	24	62 Dependents.
2. Factory Workers and others of similar grade (Females), ...	12	17 „
3. Hawkers and Itinerant Merchants, ...	1	5 „
4. Tradesmen and Skilled Labourers, ...	5	10 „
5. Miscellaneous—Porters, Stonebreakers, ...	7	16 „
6. Miners and Pit Workers, ...	4	16 „
7. Carters, ...	3	5 „
8. No occupation (idle), ...	2	6 „
	58	137 „

1905 Representations Displaced during the Year.

Classified as above, the results are as follows:—

1. Labourers, all classes (Males), ...	22	76 Dependents.
2. Factory Workers and others of similar grade (Females), ...	12	15 „
3. Hawkers and Itinerant Merchants, ...	7	4 „
4. Tradesmen and Skilled Labourers, ...	2	4 „
5. Miscellaneous—Porters, &c., ...	8	15 „
6. Miners and Pit Workers, ...	...	... „
7. Carters, ...	3	8 „
8. No occupation (idle), ...	2	7 „
	56	129 „

RELATION TO SCHOOL AND WORK.

In several cases the displaced tenants found houses in the front tenements at their respective addresses. In general they found accommodation at no great distance from their old houses, and quite as convenient both to work and school.

In the following Table (K) are shown the number of houses closed and the number of persons displaced from 1902 to date:—

TABLE K.—HOUSES CLOSED and PERSONS DISPLACED.

YEAR.	HOUSES.				POPULATION.
	1 apt.	2 apts.	3 apts.	4 apts. and up.	
1902, ...	...	14	...	...	53
1903, ...	62	60	2	1	404
1904, ...	187	124	5	...	732
1905, ...	113	106	4	...	566
	362	304	11	1	1,755
Total Houses,	678				

OWNERSHIP OF TENEMENTS REPRESENTED DURING 1905.

Grouping these 100 representations according to whether the tenements were owned privately or otherwise, we find that in 4 cases the owners were either house factors or other business firms, in 35 the tenement was Trust property, and in 61 it was owned privately. Of these 61 owners, 33 were resident in Glasgow and 28 beyond the boundary.

OWNERSHIP OF TENEMENTS REPRESENTED IN 1905.

Private Owners.	Firms, House Factors, &c.	Trustees and Others.
61	4	35
Total Representations,		100

PRIVATE OWNERSHIP.

Resident in Glasgow.	Resident outside City.
33	28

GROWTH OF THE FARMED-OUT HOUSE CUSTOM.

In continuation of the record contained in Table H of the 1904 Report, the following Table has been prepared to show the extent to which the practice is increasing. At a special enumeration, referred to in the Census Report for 1901, there were in all 859 houses, containing 1,272 apartments, sub-let, and occupied under the conditions of farmed-out houses. Of these, 531 were houses of one apartment, 275 were houses of two apartments, while the remaining number of 153 were in houses of three apartments and upwards. At a special census, taken on the 12th August, 1906, these numbers had increased to 605 one-apartment houses and 451 two-apartment houses. The persons found occupying one-apartment houses were 1,193 adults and 331 children, and in the two-apartment houses 1,309 adults and 443 children, or, together 2,502 adults and 774 children living under the conditions of farmed-out houses.

It would appear that the season has a considerable influence on the number of persons living in these houses, for a record taken at mid-winter shows them to be considerably greater than at either of the two summer enumerations.

TABLE L.—GLASGOW.—FARMED-OUT HOUSES and INMATES as at 12th AUGUST, 1906.

WARDS.	Number of Houses Farmed-out.		Inmates in House of each Size.			
	1 Apt.	2 Apts.	1 Apartment. Adults. Children.		2 Apartments. Adults. Children.	
1. Dalmarnock, ...	...	...	...	...	...	...
2. Calton, ...	164	87	342	92	248	87
3. Mile-end, ...	28	2	39	11	5	8
4. Whitevale, ...	23	24	43	7	70	21
5. Dennistoun, ...	22	20	47	7	40	8
6. Springburn, ...	14	2	28	7	4	3
7. Cowlares, ...	...	...	...	...	...	...
8. Townhead, ...	58	11	118	30	39	8
9. Blackfriars, ...	73	118	145	48	394	109
10. Exchange, ...	...	17	...	...	58	3
11. Blythswood, ...	...	...	...	...	...	...
12. Broomielaw, ...	32	83	69	20	226	64
13. Anderston, ...	79	31	154	53	75	47
14. Sandyford, ...	1	...	3	1	...	...
15. Park, ...	...	...	...	...	...	...
16. Cowcaddens, ...	11	5	22	4	20	...
17. Woodside, ...	...	...	...	...	...	...
18. Hutchesontown, ...	29	20	58	16	59	36
19. Gorbals, ...	28	8	45	3	18	10
20. Kingston, ...	43	23	80	32	53	39
21. Govanhill, ...	...	...	...	...	...	...
22. Langside, ...	...	...	...	...	...	...
23. Pollokshields, ...	...	...	...	...	...	...
24. Kelvinside, ...	...	...	...	...	...	...
25. Maryhill, ...	...	...	...	...	...	...
CITY, ...	605	451	1,193	331	1,309	443
CENSUS, 1901, ...	531	275	...	...	...	...

HOUSES LET IN LODGINGS.

Closely associated with farmed-out houses are those let in lodgings, the distinction between them being to a large extent a technical one. For last year's Report I endeavoured to obtain an enumeration of the number of persons living in houses let in lodgings, and the result was contained in Table M. A similar enumeration was taken at 30th June this year, with the result that the number of families resident had decreased from 798 in 1904 to 675 in the present year, and that the total number of persons composing these families had decreased from 1,652 to 1,436. In both years the information has been supplied by the principal tenant of the houses.

TABLE M.—HOUSES LET in LODGINGS, showing NUMBERS in each WARD, at 30th JUNE, 1906.

WARDS.	No. of Houses on Register.	No. of Houses Empty or in which no Lodgers kept.	No. of Houses Actually Let in Lodgings.	No. of Apartments.	No. to Accommodate (Adults).	Inmates found.	
						No. of Families.	Total No. of Persons (All Ages).
1. Dalmarnock, ...	10	6	4	8	30½	10	29
2. Calton, ...	53	23	30	71	240½	77	148
3. Mile-end, ...	10	4	6	16	49½	15	42
4. Whitevale, ...	26	24	2	5	15	6	11
6. Springburn, ...	18	8	10	18	65½	34	52
7. Cowlairs, ...	9	2	7	14	51	23	48
8. Townhead, ...	25	8	17	40	111	53	91
9. Blackfriars, ...	23	4	19	86	250½	88	192
10. Exchange, ...	1	1	...	...	...	...	...
11. Blythswood, ...	3	1	2	6	14½	6	12
12. Broomielaw, ...	19	2	17	52	159	47	110
13. Anderston, ...	15	1	14	40	126	41	76
14. Sandyford, ...	13	5	8	24	78	19	62
15. Park, ...	4	2	2	12	25½	5	21
16. Cowcaddens, ...	16	9	7	20	61	20	46
17. Woodside, ...	5	2	3	5	19½	9	20
18. Hutchesontown, ...	18	16	2	4	13	6	14
19. Gorbals, ...	20	2	18	55	142½	60	106
20. Kingston, ...	15	7	8	19	57	22	49
25. Maryhill, ...	115	64	51	106	358½	134	307
CITY, ...	418	191	227	601	1,868	675	1,436

NOTE.—In Wards 5, 21, 22, 23, 24, and 26 there are no Houses Let in Lodgings on the Register.

SECTION V.

OFFENSIVE TRADES.

PUBLIC HEALTH (SCOTLAND) ACT, 1897, SECTION 32.

During the year applications were made and sanction given to establish businesses in the following wards:—

Ward I.—Tanner.

„ II—Hide Factor.

REPORT BY THE MEDICAL OFFICER ON COMPLAINT OF
NUISANCE ARISING IN THE PREMISES OF MESSRS.
TAYLOR BROS., TALLOW MELTERS, 206 SPRINGFIELD
ROAD.

The present report is prepared at the request of the Local Government Board, to whom Messrs. Laird & M'Intyre, of 175 Hope Street, Glasgow, forwarded on 9th June last several signed precognitions regarding a nuisance adjacent to the works of their clients, Messrs. Brown, Stewart, & Co., Springfield Road. Messrs. Laird & M'Intyre stated that "for considerable time past" they had "been trying to get the Sanitary Authorities to move in the matter, but without success."

The nuisance in question consists of offensive smells emanating from the works of Messrs. Taylor Brothers, 206 Springfield Road, and it is the case that, since Messrs. Taylor Brothers entered into occupancy of these works, complaints have been numerous and frequently repeated. The circumstances under which they arose, and what has been done in the past to mitigate them, form the subject of the following paragraphs:—

In January, 1902, application was made under Section 32 of the Public Health (Scotland) Act for sanction to establish at these premises the businesses of tallow melting and size manufacturing by Messrs. Gibson, Broom, & Co., and, with certain alterations on the plans as submitted, the sanction of the Corporation was granted on 26th February of that year.

The business continued in the hands of the firm just named until Whitsunday, 1903, when the present occupants, Messrs. Taylor Brothers, who were already tenants of a similar work at 118 Milton Street, Glasgow, applied to the Corporation for a transfer of the license to the premises at Springfield Road; but an objection being raised by neighbouring proprietors, Messrs. Taylor's agents took the position that, the premises being already approved of for the conduction of a business similar to that of their clients, and that, as they were *de facto* not establishing a business of this sort anew, no further sanction was required. This period, therefore, marks the beginning of the complaints against this work, and already, by 24th September, 1903, it was apparent that nuisance was arising through a direct breach of the bye-laws controlling such trades.

On 8th October following, Messrs. Laird & M'Intyre brought forward evidence similar to that now submitted to the Board regarding the escape of offensive smells from Messrs. Taylor's premises, and on the following day a formal petition and memorial to the Local Authority was submitted by certain inhabitants, householders, and ratepayers—in all, 64 in number—whose names were appended thereto.

In the weeks preceding this complaint there had been frequent communication with Messrs. Taylor Brothers, and repeated consultations over the amended plans which they had prepared on receipt of the complaints already mentioned, and alluded to in a preliminary report which is attached (Appendix I. hereof). In this report the materials used and the processes of dealing with them are described, and the opinion expressed in the closing paragraph remains with me until now as the explanation of the origin of all the troubles which have ensued in connection with this work. This paragraph runs—

“While the defects above noted generally indicate the chief sources of the effluvia which have given rise to the complaints, it is to be observed that the circumstances under which Messrs. Taylor occupied these premises reveal a defect in legislation. The premises were formerly occupied for similar purposes by another firm, but it would appear from the incomplete provision made to deal with the obvious sources of nuisance that the volume of material now handled is much greater than formerly. Yet, because of the earlier occupancy, it was unnecessary for the present occupiers to submit plans or obtain the sanction of the Local Authority.”

It is quite true that Messrs. Taylor from the beginning expressed their utmost willingness to submit plans, but meanwhile the work was going on, and the volume of material dealt with at most times seems to me to have exceeded the provisions for dealing with it.

At this stage the Messrs. Taylor again undertook to prepare plans, but meanwhile the complaints continued, and on 20th November, 1903, I addressed the following letter to the Clerk of the Local Authority, pointing out that a rigorous application of the bye-laws was absolutely necessary, and that the plea that plans were in preparation should not be accepted as an excuse for the neglect of the ordinary precautions to prevent nuisance:—

“On 24th September last I wrote you regarding a complaint made by Messrs. Brown, Stewart, & Co. of a nuisance existing here, and pointed out that in my opinion it was evident that the complaint arose in consequence of a neglect of the bye-laws regarding the business in question, and which was, I understood, then having attention.

“Later the subject was revived under complaint by neighbouring ratepayers, and on 21st October I forwarded to you a report describing the processes carried on, and noting several details in which the present equipment was inadequate for the volume of work, &c., which had to be undertaken. I also suggested that Messrs. Taylor should be asked to lodge plans showing what alterations they proposed carrying out in order to comply with the bye-laws.

“I had yesterday afternoon a further complaint by Messrs. Brown, Stewart, & Co., and on telephoning I learn that a recurrence of the effluvia formerly complained of is again almost a daily occurrence.

“Pending the submission of the plans which I understand from your former letter Messrs. Taylor are having prepared, is it not possible now to take action on the present bye-laws? Is there any cogent reason why the preparation of plans should be made the excuse for continued neglect of the precautions necessary to prevent nuisance?”

On the 24th November the Clerk intimated that he considered there was no need to enter Court, as Mr. Paterson (Messrs. Taylor’s agent) had promised to lodge the plans on the following day.

On 25th November, Messrs. Taylor’s agents submitted a description of the processes to be followed by them, which was considered along with the plans presented by Messrs. Taylor themselves, and the following notes, of date 25th November, 1903, were made:—

“Mr. Taylor, in submitting revised plan, explains—

“1. Room for reception of raw material measures 10 feet 6 inches by 7 feet by 7 feet—capable, he estimates, of holding a week’s supply of raw material. This is being erected of galvanised iron, and the present shed roof is being used as its roof. It will, therefore, give easy exit to effluvia, and should be replaced by a brick structure, with a roof of its own, and provided with an exit pipe for effluvia connecting with the furnace

(see Section 1 of the Bye-laws for Bone Boilers), Mr. Taylor to consider whether the requirements might not be met by the galvanised structure being made air-tight.

"2. After treatment in the digesters, the plans, as now submitted, show, instead of the vat standing in the courtyard, a metal tank with a capacity of about 64 cubic feet on the reverse side of the wall from the site of the digesters. Into this both fat and liquor, as described in Medical Officer of Health's report of 21st October (Appendix I.), are now discharged, under a water seal, through a flexible metal pipe.

"Mr. Taylor explains that the volume of cold water contained in the tank will prevent the fat being raised to a temperature at which effluvia will be given off.

"The above method obviates the need for retaining the tank in the attic for separate treatment of the liquor.

"When cooled (after standing for half-an-hour) the fat is ladled into the purifying vats, and the liquor is run into the catch-pit shown on plan and situated in the centre of the courtyard.

"*Residue of Digesters.*—(1) Bones and (2) debris will be taken to the drying room, which is now shown as ventilated by a fan of 12 inches diameter leading from the roof (or side wall?) under the furnace bars, and heated underneath by steam coils. The roof is felted to exclude air and prevent escape of effluvia.

"The fan and a disintegrator in the manure store will be driven by an engine placed in the latter, and supplied with steam from the boiler.

"Condition of walls and floor not described.

"Mr. Taylor explains that when the drying room is in working order the material on transference to the manure store will not yield offensive odour, and if this is realised there may be no need for introducing a fan into the ventilating system of this room. Conditionally, therefore, the provision of a fan for this special purpose may be held over until the result has been seen.

"*Referred to—*

"(1) Reconsider structure of store for raw material.

"(2) Size and position of fan in drying room.

"(3) Need for fan in manure store, and position if required.

"(4) Method of transferring bones and debris from digesters to drying room.

"(5) Treatment of sides and floor of manure store."

On 1st December following, Messrs. Taylor returned the plan showing how they proposed giving effect to several of the alterations suggested in the previous note, and they were to intimate when these alterations had been carried out.

On 14th December, however, Messrs. Brown, Stewart, & Co. supplied me with a list of dates and hours on which they stated smell was being emitted, and on 21st December I asked the Secretary of the Company (Mr. Robert Bell) to keep me informed regarding any recurrence of the effluvia in question. On the 24th, I ascertained from one of the Inspectors that, on visiting, he found about 100 bags of raw material lying about in the open yard.

At the end of the year, Mr. Taylor reported that the engineer had failed to introduce either the fan or the ventilating system formerly referred to.

The reports of nuisance continued during the early weeks of January, 1904, and in a letter to the Clerk, of date 12th January, enclosing reports by Assistant Inspectors Crawford and M'Jarrow, I added—"The work is carelessly conducted, and I suggest for your consideration whether action could not now be taken for contravention of the bye-laws." On the 20th of that month, I ascertained, however, on visiting Mr. Mossman, Manager of Messrs. Brown, Stewart, & Co., that the smells complained of had recently undergone considerable modification; but on the 27th it was possible to certify the existence of a nuisance under Section 16 (6) of the Public Health Act—the question of action under the bye-laws being held *in retentis*.

On 1st February, in replying to the Clerk regarding the proceedings for breach of the bye-laws, I observed, "Should the removal of the more obvious source of smell, which is being dealt with under my certificate, fail to remove the cause of the complaint, I have in view the possibility of further action under Section 36," and the Clerk, in reply, agreed that we should await the result of the present prosecution before further action was taken.

Meanwhile, during February, Mr. Bell, Secretary of Messrs. Brown, Stewart & Co., kept me supplied with observations regarding the continuance of the nuisance, and on 30th March, 1904, I again wrote the Clerk—

“On Friday last, 25th current, I again visited the above works, and found, as on former visits, that there is much laxity in the management, in addition to which the floor of the drying room is unsuitable in character, no ventilation has yet been provided for the store of raw material, and the residue of the digesters, after it has been pressed and dried, still retains sufficient moisture to undergo heating in the manure store. These are all illustrations of details which would warrant action being taken under Section 36 of the Public Health Act, should a rigid enforcement of the bye-laws prove insufficient to deal with them and with the source of the complaints.

“Meanwhile, however, a discrepancy has arisen as to the actual emission of effluvia here, which requires some further observation. Since Saturday last, 26th current, the Inspector of the Eastern District has organised a watch in the morning and again in the afternoon hours in the neighbourhood; and his observations, curiously enough, while exonerating Messrs. Taylor Brothers from the discharge of offensive effluvia from their works during the hours of observation, have resulted in bringing into prominence a complaint of quite a different character, and which is of old standing in this district, viz., that arising from the works of Messrs. Brown, Stewart, & Co. On the other hand, the Secretary of Messrs. Brown, Stewart, & Co. informs me that on Sunday last (27th current) the *‘smell was sickening during the whole of the day, but particularly at nine o’clock in the evening;’* and, further, that ‘yesterday the smells were very bad between eleven and twelve o’clock.’

“I think you will agree with me that, in the face of this discrepancy in the evidence, it would be impossible at the moment to begin any proceedings under Section 36 of the Act, as the Inspectors would be unable to support the certificate by evidence of actual discharge of offensive effluvia; and I doubt whether persistent effort has yet been made to obtain full advantage of the bye-laws for regulating the trades here conducted.”

Meanwhile Messrs. Brown, Stewart, & Co. kept me supplied with a pretty constant record of the smells emitted.

It will have been observed that there frequently recurs the possibility of alternate action under Section 16 (6) or under the bye-laws, or under Section 36 of the Public Health Act, but that, until the power of the bye-laws was exhausted, action under the major provision of Section 36 was held in abeyance.

Several of the defects noted were in direct contravention of the bye-laws regarding structure, and are referred to in the following letter to the Clerk, of 4th May, 1904:—

“I visited these works yesterday again, and also had an interview with Mr. Mossman, and find that for the last fortnight there has been no complaint of offensive effluvia from Taylors’ premises.

“There is still, however, need for the bye-laws being enforced in the following respects:—

“1. In the fat melting room they are in the habit of retaining the day’s produce of pressed cakes before removing them to the drying room. This should not be allowed. These cakes should be removed to the drying room directly they are taken from the press.

“2. The flooring of the drying room is defective, and exhaust steam is allowed to discharge through the wall over the floor of the melting room.

“3. The fan removing the effluvia from the drying room is worked only intermittently, because of some defect, either in the water supply or in the size of the boiler. I am informed that when the digesters are in operation there is not sufficient surplus steam either for the disintegrator or the fan.

“4. The volume of material to be ground seems to be in excess of the power of the disintegrator to cope with, as presently used at least.

“5. There is no provision for removing the effluvia from the store room for raw material.”

On the 29th of June, I made a verbal statement to the Committee on Health recommending prosecution under the bye-laws, to which they agreed.

On 30th June, I found, on visiting Mr. Mossman, the manager of the paper works, that, since my last interview with him, the smells had only been felt at long intervals, and then only for short periods, and he stated, as illustration, the 3rd, 4th, 7th, and 13th June as dates on which it was felt for an hour or more, but that on the 28th it had been very bad.

On visiting Messrs. Taylor's works on the same occasion, I found a portion of the building, not formerly described (Memo., 30th June, 1904), and not formerly included in the premises licensed, used as a store for surplus debris from the drying room, but they at once undertook to remove it and not use it again as a store. They further undertook to give effect to the alterations already described in my letter to the Clerk of 4th May.

During the following months, however, the Secretary of Messrs. Brown, Stewart, & Company again wrote complaining that the nuisance was in nowise abated, although on this point Mr. Mossman, the manager, stated that, since the previous complaints, the smells had been seldom noted, and were never bad until about 27th and 28th August, when they recurred owing to a breakdown in the digester.

In November, 1904, in reply to an enquiry directed to the Clerk to ascertain what action had been taken subsequently to my statement to the Committee on 29th June, I learned that a complaint under the Public Health Act had been instituted, but withdrawn on defenders' agent undertaking to have the nuisance removed and to pay expenses. He further informed me that, about six weeks prior to the date of his letter, a prosecution for contravention of the bye-laws regulating their trade had been instituted in the Sheriff Court, but continued for two months to allow defenders to replace their existing boiler by a larger one, which it was expected would prevent recurrence of the nuisance.

Since that date until receipt of the present complaint I have been without definite information on the matter, and, indeed, I learn from Mr. Mossman (27th July, 1905) that during the winter months there was little cause for complaint.

It will be useful here to insert a description of Messrs. Taylor's premises and of the methods now adopted—

PART I.—GENERAL DESCRIPTION OF THE PREMISES AND METHODS, 22ND JULY, 1905.

(1) *Introduction.*

Between 13th and 20th July, 1905, five visits were paid to the tallow works of Messrs. Taylor Brothers, in Springfield Road—one visit by appointment, four visits unannounced. One believes that the following statement, which is based upon observation and inquiry, represents the method and condition of these works as they are now conducted. The expression "within one's notice" has reference to details which came under one's observation during a visit.

(2) *The Final Products.*

The final products of the process at these works are two—first, tallow for use by soapmakers; second, bone meal for use as manure. The preparation of flour siftings (a new process, not originally contemplated), which is conducted within the precincts of the works, may be looked on as coincidental.

(3) *Arrangement of the Works.*

The buildings are ranged on three sides of a cement-paved yard, which is entered from Springfield Road. The west side of the yard abuts on the road, and is separated from it by an adequate wall.

On the north side of the yard are the office, the flour-sifting house, and the disintegrating house. On the east side of the yard—that is to say, on the side remote from Springfield Road—are the drying house and the melting house. On the south side of the yard are two digesters, a Cornish boiler, and a stable. The store for raw material abuts on the building line of the melting house.

The yard and the melting house are fitted with gullies, and the drain has a grease trap.

Steam is led from the boiler to the digesters, melting house, drying house, and disintegrating house in order.

In the drying house is a fan which guards the remoter end of a ventilating flue. This ventilating flue passes from the drying house by way of the melting house to an outlet beneath the fire-bars of the boiler, and receives in its course tributary flues from the disused jacketed pan, the raw store, and the melting vats.

(4) *The Raw Material.*

The raw material of the process consists in the major part of bones, and in a less degree of indefinite animal tissue. One describes the raw material in general as bones and other tissues (ham skins now disused). The bones and other tissues, so defined, are procured daily from butchers, and are believed to be derived, as far as may be, from recently slaughtered animals. It is within one's notice that the bones and other tissues at the moment of arrival show varying degrees of freshness—a consignment which one inspected on delivery on 13th July showed early evidence of decomposition; a consignment which one inspected on 18th July was fresh, dry, and odourless; and a consignment which one inspected on 19th July contained heads of sheep and lungs of oxen, black and green from putrefaction, populous with maggots, and notably offensive to the sense of smell. It is said to be the wish of Messrs. Taylor Brothers to procure fresh bones, as decayed material yields inferior tallow.

(5) *Storage of the Raw Material.*

The raw material is stored in a structure which may be called the "raw store." The raw store is a structure with its roof and walls of corrugated iron, entered by a wooden door, and provided with a ventilating flue. Piercing the roof of the raw store, this flue joins the main ventilating channel at right angles, and its vapours pass to destruction in the boiler furnace.

The raw material, which is delivered in mass in the open air on the paved floor of the yard, is immediately shovelled into bags, and in these bags is conveyed without delay to the raw store. After its removal from the yard, the place where it had lain is cleansed with water.

The sojourn of the bones and other tissues in the raw house is inconstant; the period of twenty-four hours was named.

It is within one's notice on 18th July that the raw store held ammoniacal and putrefactive gases, and that these gases, escaping through chinks, caused an unpleasant odour in the yard.

(6) *The Process of Digestion.*

By the process of digestion, tallow is extracted from the raw material. Two steam-pressure digesters are in use with this object, working at a pressure of 40 lbs. to the inch, and capable, both together, of containing 30 cwts. The digesters are filled from above, through apertures sufficient to receive the raw material of the sizes delivered. From the raw store, which is close at hand, the raw material is carried in its bags, and is shaken from its bags directly into the digesters. It thus appears that there is no need for any but momentary exposure of the raw material in its transit from the raw store to the digesters.

The door plates of the digesters are screwed down; steam is applied, and water of condensation collects in the lower part of the digesters. As concerns the duration of digestion, the period of ten hours was named. In the absence of flaws of joints or washers, the process of digestion is inoffensive. Flaws of this character were not within one's notice on any visit.

(7) *The Tallow Running.*

The tallow is run from the digesters into the tallow tank, which stands in the melting house. The tallow tank is a receptacle of galvanised iron, with two sliding doors, and the following is the method of tallow running:—

As soon as digestion is judged to be complete, a flexible metal pipe is screwed on a stop-cock in the lower part of the digester concerned. This metal pipe is led into

the tallow tank through one of its sliding doors, the free end of the metal pipe is thrust to the bottom of the tallow tank, the interstices at the sliding doors are covered with sacking, which is pegged and weighted in position, and then the stop-cock of the digester is opened. The steam pressure within the digester forces the melted tallow and water of condensation from the digester into the tank.

It is within one's observation on 18th July that this tallow running may be conducted in an inoffensive manner. Neither steam nor odour was detected by one at the sacking covers on one's visit of 18th July.

(8) *The Tallow Cooling.*

For one hour on an average the tallow tank remains closed, and the tallow grows cool, but not solid, on the surface of the water of condensation. Then the sliding doors are opened, and the tallow is inspected. At this stage of the process it is within one's notice that the free steam above the cooling tallow in the tank was slight in quantity; on introducing one's head into the tank, one noted an odour which may be described as heavy, but not disagreeable, and which was associated by the mind with anchovy paste.

If the tallow, on inspection, is seen to be of suitable quality, it is ladled into barrels for final cooling. It is within one's notice that the process of ladling is accompanied by a trivial separation of vapour which smelled of roasting or frying.

When ladling is complete, the water of condensation is run off by a stop-cock near the floor of the tank. This waste water is without offence; it spreads freely on the pavement of the melting house, and gravitates to the gully. A jet of fresh water from a hose cleanses the place where it passed.

This tallow in barrels is the finished product. Its odour is slight and not ungrateful. The barrels remain in the melting house; but they find a ready sale, and their daily removal is the rule.

(9) *Tallow Purification.*

If the tallow on inspection in the tank shows an inferior quality, it is ladled from the tallow tank into melting vats. Inferior tallow is frequently the result of putrescent raw material; and the ladling of inferior tallow *is probably capable, under suitable conditions, of discharging offensive odours.* This detail, however, is not within one's notice.

Seven wooden melting vats line the wall of the melting house. Each is barrel-shaped; one-quarter of the top of each is fixed; three-quarters of the top of each is movable, and forms a hinged lid opening upwards. Each vat has a flue for its effluent vapours. The flue of each vat joins the common melting-vat flue, which meets the main ventilating channel at right angles, and passes the effluent vapours to the furnace. Steam for purification of the tallow is led to the melting vats from the boiler.

The process of purification is not obnoxious. It is within one's notice that steam did not escape from the vats during purification.

On the completion of the process the steam is cut off. After an interval for cooling the hinged lid is raised, and the tallow is ladled into barrels for final cooling. It is within one's notice that the lifting of the lid was attended with the escape of steam in some volume. The escaping steam had a vigorous odour, which recalled roasting or frying, in no way displeasing in itself, but at the same time quite manifest and powerful. This odour permeated the melting house, and the steam was observed to reach the outer air through roof apertures.

The waste water of condensation from the melting vats is run off on the floor of the melting house, and gravitates to the gully. *It is not within one's notice that this water had an offensive odour.*

This purified tallow, cooled in barrels, is a finished product. For the purposes of this report it does not differ from the tallow of last section.

(10) *Removal of Solid Residue from the Digester.*

When tallow running is completed the digester remains closed, and from a tap in its upper part a jet of cold water plays on the residue of bones and other tissues. Steam is condensed, pressure falls, and the separable impurity of the bones is carried downwards by the spray.

One was present during the discharge of a digester at 5 p.m. on 18th July. The procedure on that occasion may be thus described.

The same stop-cock in the lower part of the digester as was employed in the tallow running was opened once more, and a stream of water escaped gently enough to indicate the absence of high pressure within the apparatus. This stream was brown in colour, tepid in temperature, and void of offence to smell. It flowed over the paved yard to the gully, and the place where it had been was flushed with a hose.

A screwed cover in the lower part of the digester was now removed, and the digested bones became visible in the aperture as they lay on their perforated plate. No steam rose when the cover of this aperture was displaced, and the odour within the aperture was of roasting—hardly pleasing, but slight in volume. The bones were raked into waiting barrows, and promptly wheeled to the drying house. These bones were not steaming; on close inspection they did not smell unpleasantly, and no odour from this source was noted in the yard.

(11) *Bone Drying.*

The bones and other tissues are discharged from the barrows on the steam-heated floor of the drying house. They are spread on the floor, and lie for twenty-four hours.

It is within one's notice that *the air of the drying house was habitually filled with pungent ammoniacal vapours*, which irritated the eyes and impeded respiration. These vapours were limited to the drying house at the time of one's visits, and were not detected in the yard outside. On the same occasions a *considerable accumulation of treated bones was visible on that side of the drying house remote from the door.*

The main ventilating channel of the works terminates in the drying house. A fan in the drying house propels vapours into this channel, and the draught of the furnace aids extraction. *The fan was not seen in action on any visit which one paid.*

(12) *Bone Disintegration.*

The bones are transferred from the drying house to the disintegrating house, and are disintegrated by means of a steam-driven disintegrator. *The engine which drives the disintegrator drives also the fan of the drying house.* The process of disintegration is dusty, and *the disintegrating house is without a special ventilating apparatus, but the attempt is made to reduce the separation of dust by retaining a degree of moisture in the bones.*

It is within one's notice that on 18th July and afterwards *a pile of bones, as yet undried, filled an area of the disintegrating house*, while beside this pile lay a heap of the fibrous debris known as meat meal. A thin vapour resembling steam was visibly rising from the summit of this pile, and it appeared probable that an odour of ammonia, which was well marked in the disintegrating house, was derived from the bones in question.

The result of disintegration is the final product called bone meal, which is odourless and inoffensive.

(13) *Flour Sifting.*

This process is conducted in the flour-sifting house. The raw material employed is known as bakery sweepings, and consists of refuse flour and bread. The raw material is odourless, the sifting process is inoffensive, and a perceptible odour of ammonia which was observed in the sifting house was believed to have its origin in the disintegrating house adjacent.

(14) *Accumulations.*

There are three classes of material collected in the yard which are not housed within roof and walls—

(a) *Gypsum*, in bags in a pent house at the door of the drying house, a mineral substance and without offence.

(b) *Ligaments*, horn, and other tissues unsuited for the disintegrator. These substances lie also in bags at the door of the drying house, awaiting the chance of disposal. No offence is traced to this source.

(c) *Discarded Raw Material Bags.*—It is within one's notice that a heap of these bags, amounting to two dozen by estimate, lay in a corner of the yard on 19th July, destined for removal at the first opportunity. One was informed that bags of this order are removed as refuse by a contractor three or four times a week. At the

time of one's visit on 20th July these bags had been taken away. The bags in question had an unsightly aspect, showered maggots when lifted, and on close inspection displeased the sense of smell. Their odour, however, was not disseminated in the yard.

PART II.—DEFECTS OF THE PREMISES AND METHODS.

(15) *Accentuating Circumstances.*

In basing an opinion regarding the present condition of these works upon observations made between 13th and 20th July, it is just to bear in mind two circumstances which accentuated at that time the objectionable features of Messrs. Taylor Brothers' industry.

In the first place, the weather conditions were favourable to putrefaction, and to the rapid separation of its gases.

In the second place, the occurrence of Glasgow Fair lessened the demand for their product; and, as a consequence, Messrs. Taylor Brothers received and handled a quantity of tissue in excess of the normal capacity of their works. Evidence of this detail is offered by the following Table:—

AMOUNT of BONES received by MESSRS. TAYLOR BROS. during last completed week recorded, and for the corresponding weeks of Six Months from January, 1905.

Bones received during—					Tons.	Cwts.	Qrs.
Week ending 14th January,	...	...	...	...	8	2	0
Do. 18th February,	...	...	...	...	3	3	2
Do. 18th March,	...	...	...	...	5	10	2
Do. 15th April,	...	...	...	...	6	12	1
Do. 19th May,	...	...	...	...	8	3	3
Do. 16th June,	...	...	...	...	7	12	3
Do. 15th July,	...	...	...	...	19	12	3

It may be noted here that in the early months of this year Mr. Mossman states that the intensity of the escaping odours from the works was unobjectionable.

(16) *Information from Records of Complaint.*

The records of present complaint made regarding these works were examined in the hope that the hours at which effluvia was alleged, or the terms by which it was described, might point to one stage of the process rather than others. Little instruction was conveyed by this examination, though references to the early morning were noticed to occur with some frequency; and the words by which the odours were defined do not admit of any discrimination. Inquiry on these lines would in any case be much complicated by the detail that the process is so ruled by laws of supply and demand that a given stage may occur at any hour of the twenty-four indifferently.

In considering questions of defect, the order of the general description is followed.

(17) *System of Ventilation (Part I., Section 3).*

These are the defects of the system of ventilation:—

(a) *Application.*—Its application is too restricted—the disintegrating house and the melting house are excluded from the system. The change in situation of the boiler for steam generation from the melting house to the yard has thrown the former out of the scheme of ventilation originally designed.

(b) *The Channels.*—The main ventilating flue has unnecessarily angular turns, whose friction diminishes the velocity of its air current. The same flue is gaping where it turns into the fire-box. The tributary flues have rectangular turns, and join the main flue at right angles. The flues apply the extractive force impartially, and no method obtains for exerting ventilation exclusively in the quarter where embarrassment has arisen. It is notable that one flue is exhausting the disused jacketed pan.

(c) *The Forces*.—The fan in the drying house, which was stationary at the visits, is driven by the disintegrator engine, and its activity may be said to be contingent on the use of the disintegrator. When the fan is in abeyance, the pull of the furnace does not suffice to purify the drying house or the raw store, and would be still less effective if the system were expanded to include the disintegrating house and the melting house.

Improvement in this system of ventilation would be effected by slides or valves for closing the tributary flues at will. The fan should be driven by a separate engine, and the disintegrating house connected with the ventilation system.

(18) *Storage of the Raw Material (Part I., Section 5).*

These are the defects in the storage of the raw material. The raw store is constructed of unsuitable substance, and is inadequate in size for the volume of material at present dealt with. The sun speedily heats its roof and walls of iron, and the temperature rises within. The raw store is not air-tight, but spreads its gases abroad. Its ventilating flue is ineffective.

An *improvement* in the storage of the raw material would be effected if the iron raw store were replaced by an air-tight brick structure, larger in extent and covered with a heat-proof roof. It should be provided with a trap, through which the bones could be tipped in bulk and bagged under cover. The tipping and bagging of putrid tissues in the open air, even though performed with speed and diligence, causes a wide dispersion of the gases of decomposition.

On several of the visits to these works the yard was pervaded by the effluvia of decay, and a milder odour of the same quality was noted in the road outside. One formed the opinion that the raw material, whether stored or in process of bagging, was the source of this offence, and that its careful supervision, especially under summer conditions, was of extreme importance.

(19) *The Process of Digestion (Part I., Section 6).*

There are no inherent defects in the process of digestion, and the digesters appear adequate as apparatus. Yet if the workmen were neglectful of the leaks which from time to time occur, the escape of malodorous steam would readily give cause of annoyance.

(20) *The Tallow Running (Part I., Section 7).*

The process of tallow running has no inherent defects, but in the hands of a careless workman is capable of unsatisfactory results.

(21) *The Tallow Cooling (Part I., Section 8).*

Defect in the process of tallow cooling would arise by the premature opening of the tank, when inferior tallow would liberate noisome vapours. The melting house has no check on this possibility, and steam from the tallow tank has free access to the outer air. (See earlier observation of effect of removing boiler therefrom.)

Improvement in the cooling process would be effected by the provision above the tallow tank of a cowl and flue for conducting its vapours to the main extracting channel.

(22) *Tallow Purification (Part I., Section 9).*

When the hinged lids of the melting vats are raised, steam ascends freely into the air of the melting house, and carries with it odours which compel attention. These odours, though they were not acutely offensive within one's notice, were strong and abundant; and it was obvious that, along with the steam, they were reaching the atmosphere through spaces in the roof. The odours of the melting vats are derived from impure tallow, and one formed the opinion that there are conditions under which they would be fetid.

Improvement in the process of purification would be effected by the provision above each melting vat of a cowl and flue for leading its vapours to the main ventilating channel.

(23) *Removal of Solid Residue from the Digester (Part I., Section 10).*

This part of the process has no inherent defect; it is capable of being conducted in an inoffensive manner; but a deviation from the prescribed rule on the part of the

workmen in charge may reduce the amenity of the procedure. If the cooling jet is played on the residue for too short a time, the door plates will be displaced before pressure has fallen, and steam will escape from the apertures, or the bones will be raked out while still hot and evolving steam. Steam of this quality is capable of grave offence.

(24) *Bone Drying (Part I., Section 11).*

These are *defects* of the drying house. The pull of the furnace is unable to ventilate it through the flue provided. Its fan has a tendency to remain stationary. *The house is used on occasion, as it appears, for the storage of dried bones.*

An *improvement* in the drying house with respect to ventilation is suggested in Section 17. To use the drying house as a store is to tax its resources unduly, and this practice should be discontinued. Apart from its use as a store, it is questionable whether the area of drying surface is adequate for the volume of material at present being dealt with.

(25) *Bone Disintegrator (Part I., Section 12).*

The *defects* associated with the disintegrating house concern its use as a store rather than its use for disintegration. There is no mechanical means for the extraction of vapours exhaled by stored material, and its twofold use is objectionable. During these visits it was being used as a store for undried debris taken direct from the digesters.

An *improvement* in this connection would be the provision of more ample storage room and the inclusion of the disintegrating house within the system of mechanical ventilation.

(26) *Accumulations (Part I., Section 14).*

Little objection need be made to the bags of gypsum, horn, &c., which lie near the drying-room door, but the disused raw material bags, instead of lying in the open air, should be in a covered place, with mechanical ventilation—for example, in the store for raw material.

(27) *The Personal Factor.*

It is important to estimate the personal factor in a question of this class, but in the absence of constant supervision by oneself, this is only possible by a process of exclusion. That is to say, that, if in a tallow work which was perfect in its mechanism and processes offences continued to arise, one would lay a charge against the workmen without more ado. Messrs. Taylor Brothers' work, however, has not yet attained the perfection suggested, and one has no data for a discussion of the competence of their employees. So long as one was present in the work the workmen seemed expert and assiduous, but it is not, for example, a necessary deduction that they always cool the digester with the same care as was then shown.

(28) *Relative Importance of Defects.*

The defects described have the following order of importance:—

(a) *Defects in Storage of Raw Material* (Sections 4, 5, 18).—Remedy for these defects is essential, and claims attention first. It is possible that success with this remedy would obviate the need for further steps at present.

(b) *Defects of Ventilation* (Sections 3, 17, 21, 22), more particularly with reference to the raw store and the melting house. The provision of cowls over the vats in the latter is now an advisable course for the reasons formerly stated. Such an expansion of the system will require an increase and a regulation of the extracting and propelling forces. Increased supply of motor power direct to the fan is necessary, and it is probable that the suggestion to occlude certain flues by slides at will would effect much economy of the power employed.

(c) *Defects in respect of inadequate storage*, apart from raw storage, are of less importance in the meantime. Dried bones are stored in the drying house, and wet bones and other material from the digester in the disintegrating house; but this may be largely an effect of temporary over-production—as shown by the Table in Section 15—and in any case it is a condition whose offence is confined within the walls of the houses, as *ammoniacal odours were not detected in the yard*. The defect in the storage of disused bags would be automatically remedied by the change which is suggested for the raw store, for the bags in question would be retained in the new structure.

PART III.—SUMMARY AND CONCLUSION.

It is evident, on a review of the conditions just described, that action is possible to the Local Authority under Section 36 of the Public Health Act, but the provision in Sub-section (2) thereof would appear to suggest that its first result would be to refer the action to a further development of the alterations which have from time to time been suggested with the view of mitigating the more obvious causes of nuisance in a work of this character.

As has been said, the origin of the difficulty appears to be in the wording of Section 32 (6), where it is stated that a business of this class "shall not be deemed to be established anew on any premises by reason only that the ownership or occupancy of such premises is wholly or partially changed," and the Messrs. Taylor's appreciation of this privilege is shown by their having withdrawn the application originally made on the appearance of objectors to the sanction of the Local Authority being granted. In their predecessors' time no complaint arose, but whether this was due to a smaller amount of work, or the treatment of fresher material, or more careful handling, there is no evidence.

Apart, however, from the personal element of indifference on the part of the owner, or carelessness on the part of workmen, which are not here suggested, and even in the presence of machinery adapted to the purpose, nuisance is bound to arise in a work of this character whenever the volume of material exceeds the means for handling it, and that this is the present condition in Messrs. Taylor's premises is illustrated by their use of the drying room as a store for dried material, and of the grinding room for the wet debris from the digesters. It is questionable whether the space at Messrs. Taylor's disposal is sufficient for the extent of the business which, at some portions of the year at least, they undertake. During the early months of this year, aided by low temperature and a reduced volume of incoming material, no nuisance was felt (see Mr. Mossman's statement), but under summer temperatures and a doubled volume of material, offensiveness readily arises.

That this could be reduced to a point when it would cease to be objectionable is, I think, a reasonable expectation, were the structural changes which have been indicated carried out.

All of this can be obtained under existing bye-laws, and probably more readily by this means than by action under Section 36, for the reason already stated.

(Signed) A. K. CHALMERS.

Sanitary Chambers,
Glasgow, 28th July, 1905.

APPENDIX I.

TAYLOR BROTHERS, TALLOW MELTERS, 206 SPRINGFIELD ROAD.

REPORT ON COMPLAINT BY 64 HOUSEHOLDERS AND RATEPAYERS.

The precognitions by which the complaint is supported set forth that nauseating smells are emitted at intervals from the works in question, which are always offensive, and have on one or two of the occasions mentioned in the precognition been followed by sickness in some of those who have been exposed to them.

A somewhat detailed description of the materials dealt with and of the process of manufacture will be necessary to render clear the stages of the latter, which are probably associated with this complaint.

Raw Material.

The raw material dealt with I found during my visit to consist of—

Ham skins (arrived 20th October).

Bones from hawkers (green in patches), arrived 20th October).

Fresh ham bones from Ireland (arrived 16th October).

Do. Ayrshire (arrived 19th do.).

Do. Glasgow (arrived 20th do.).

Fresh ox bones from Glasgow butchers (arrived 19th October).

All of this was contained in bags, some of which were under a shed roof, but for the most part were lying in the open yard.

Mr. Taylor showed me an iron tank for the reception of raw material, which had been introduced to comply with the regulations, but was far too small for the quantity present.

Process of Manufacture.

After the bones are broken, they, along with the skins, are placed in two digesters situated in the open, and working at 40 lbs. pressure. One of these had steam escaping from a defective valve, and in the other an escape of steam was due to a deficient washer in the manhole at the top.

The fat from these digesters is run off through a flexible metal pipe into a vat standing near, and containing cold water, the fat being discharged under the surface of the water, so that the steam and organic vapours are condensed, and do not now escape into the air. At the time of the complaint the water seal was not used, I am informed.

When the fat is taken off there is a residue still to be dealt with, which consists of—

- (1) Bones and other organic debris; and
- (2) Liquor, from which latter glue might be made, but is not in the present circumstances.

At present it is forced, under steam pressure, through a 2-inch pipe leading from the bottom of the digesters to two galvanised open tanks situated under the slates of an adjoining shed. In these tanks the remaining fat is allowed to separate from the liquor, and is then run into an open steam-jacketed boiler adjacent. When the fat is separated from this portion of the liquor, the liquor is run into the sewer. The present method of dealing with this liquor is not satisfactory. Mr. Taylor suggests that it would be easy enough to run it all into the cold-water vat formerly mentioned, into which the fat from the digesters is discharged. Should any difficulty arise in thus dealing with it, it would be necessary to consider the introduction of a substitute for the present form of tank in the roof of the vat shed.

From the cold-water vat already mentioned the separated fat is ladled out and purified in five vats, into the bottom of which steam is blown. Each is fitted with a hinged cover. A ventilating pipe for the effluvia from these goes into the boiler flue, but not below the fire.

Residue of Digesters.

On the removal of the fat and liquor just described, the solid residue, consisting of bones and organic debris, must be further dealt with. These are taken into a hydraulic press (with a hand pump) in the building where the vats are, to express any remaining fat, and the dried remainder is then removed to a store, where it is dried on hot plates forming the floor and heated underneath with 9-inch steam pipes. Thereafter it is removed to another shed, where the bones are separated from the finer debris known as meat meal.

The bones are packed in bags, and go to manure manufacturers, and the meat meal remains in heaps till it can be disposed of.

The drying shed is presently not ventilated, except that the roof is not tight, and there is no provision as yet of a fan, which is to exhaust the air from it and deliver it below the furnace bars.

The manure or riddling store cannot be properly inspected because of the material covering the floor, which is very dirty, and the shed generally is in an unsuitable condition for its present purpose.

Remedies.

- (1) Defects in joints of digester to be repaired.
- (2) Manure store to be overhauled in floor, walls, and roof, and, if necessary, a fan introduced to draw effluvia to furnace.

(Mr. Taylor explains that, after the drying-room fan is introduced, the material dealt with in manure store will be dry. In that case a fan may not be necessary.)

- (3) Drying room requires a fan, which is said to be on order.
- (4) The iron tanks for the reception of debris from digesters to be altered as already described.
- (5) Enlargement of receptacle for the reception of raw material.

While the defects above noted generally indicate the chief sources of the effluvia which has given rise to the complaints, it is to be observed that the circumstances under which Messrs. Taylor occupied these premises reveal a defect in legislation. The premises were similarly occupied for similar purposes by another firm, but it would appear, from the incomplete provision made to deal with the obvious sources of nuisance, that the volume of material now handled is much greater than formerly. Yet, because of the earlier occupancy, it was unnecessary for the present occupiers to submit plans or obtain the sanction of the Local Authority. The Messrs. Taylor are willing to accept any suggestion which will obviate a recurrence of the nuisance complained of, and are willing to submit plans showing in detail the methods to be adopted. Quite apart, therefore, from any decision to prosecute for the alleged nuisance, it will be desirable to have these plans now for approval by the Local Authority.

(Signed) A. K. CHALMERS.

21st October, 1903.

APPENDIX II.

RÉSUMÉ OF CORRESPONDENCE AND REPORTS.

T. B. = Taylor Bros.

B., S., & Co. = Brown, Stewart, & Co.

1903.

June —.—T. B. apply for leave to take over 206 Springfield Road.

Aug. 17.—B., S., & Co. protest against license.

„ 18.—Clerk replies that no license is required.

Sept. 16.—B., S., & Co. complain of odours, and continue to complain.

„ 18.—*Report.* No means of drying or removing digester refuse.

Oct. 3.—*Report.* Escape of steam by clearing digesters.

„ 8.—T. B. promise to amend *re* two above reports.

„ 21.—*Report.* Required:—fan in manure store and drying room; change in debris tanks; enlargement of raw tank.

Nov. 25.—T. B. are getting a new raw tank They have a fan in the drying room.

„ 25.—Mr. Fyfe states that digesters are not cooled before opening.

Dec. 22.—B., S., & Co.'s manager asks for a new house. B., S., & Co. will hold Local Authority responsible for this expense.

„ 29.—T. B. say that digester refuse is never taken out steaming.

1904.

Jan. 27.—*Report.* Fan often stationary.

„ 27.—Dr. Chalmers certifies nuisance, and proceedings begin.

Mar. 23.—Case comes up. T. B. undertake to remove nuisance.

„ 30.—*Report.* Bones become heated in manure store.

„ 31.—*Report re* flaw in cover of digester, stillness of fan, &c.

April 18.—B., S., & Co. threaten to approach Local Government Board.

May 4.—*Report.* Pressed cakes kept in fat-melting room; raw store has no fan; floors defective.

June 30.—*Report.* To be a new floor in drying room.

Nov. 17.—Note *re* prosecution under bye-laws, which came up in October, and was continued for two months. T. B. offer to put in new boiler.

1905.

July 4.—Local Government Board require report.

APPENDIX III.

NOTE REGARDING APPARATUS WHICH IS DISUSED.

1. Tank for residual liquor after separation of tallow, with a view to preparation of size.
Ref. 21st October, 1903.
2. Hydraulic press in melting house for extracting last traces of tallow from bones.
Ref. 21st October, 1903.
3. Pressed fat cake process. Ref. 4th May, 1904.
4. Jacketed pan in melting house.

SECTION VI.

(D) SPECIFIC ACCOUNT OF THE ADMINISTRATION OF THE FACTORY AND WORKSHOP ACT, 1901, IN WORKSHOPS AND WORK-PLACES, IN TERMS OF SECTION 132 OF THAT ACT, TOGETHER WITH A TABULAR STATEMENT IN THE FORM ISSUED BY THE HOME OFFICE.

REGISTER OF WORKERS.

Table XLIII. contains a statement of the number of laundries, bakehouses, restaurant kitchens, other food places, and other workshops, as well as the total number of workshops in each ward in the City. The total number of workshops in the City is 4,961, as against 4,776 on the register last year; the number of inspections made, 31,654; and the number of notices issued, 1,915.

Table No. I. of the Home Office list, which forms Table XLIV. of the present Report, requires that the number of inspections of such factories and factory laundries as are by Section 103 of the Factory Act placed under the jurisdiction of the Local Authority for sanitary purposes, and also of work-places as distinct from workshops, but the total visits are here included under workshops.

To the home-workers' premises, 2,392 visits were made during the year.

TABLE XLIII.—GLASGOW, 1905.—NUMBER of WORKSHOPS on the REGISTER, with NUMBER of INSPECTIONS and NOTICES.

MUNICIPAL WARDS.	Laundries.	Bakehouses.	Restaurant Kitchens.	Other Food Places.	All Other Workshops.	Total Workshops.	Number of Inspections.	Number of Notices.
1. Dalmarnock, ...	11	10	16	2	133	172	1,386	61
2. Calton, ...	13	22	15	19	387	456	3,886	147
3. Mile-end, ...	14	14	14	4	143	189	1,642	62
4. Whitevale, ...	4	13	7	8	146	178	1,661	44
5. Dennistoun, ...	7	9	2	1	85	104	801	17
6. Springburn, ...	6	4	7	...	42	59	489	28
7. Cowlairs, ...	4	5	14	1	36	60	406	32
8. Townhead, ...	7	14	8	...	116	145	1,466	129
9. Blackfriars, ...	3	12	11	9	384	419	2,684	154
10. Exchange, ...	2	10	29	7	442	490	2,159	162
11. Blythwood, ...	1	6	32	3	320	362	2,667	125
12. Broomielaw, ...	3	6	24	11	312	356	2,891	115
13. Anderston, ...	7	4	19	2	95	127	286	33
14. Sandyford, ...	8	16	5	...	142	171	495	37
15. Park, ...	8	8	1	...	137	154	257	15
16. Cowcaddens, ...	14	24	15	1	149	203	2,046	159
17. Woodside, ...	18	11	8	1	117	155	980	80
18. Hutchesontown, ...	15	13	9	6	89	132	906	90
19. Gorbals, ...	21	17	8	8	360	414	2,501	282
20. Kingston, ...	14	13	19	4	217	267	1,438	139
21. Govanhill, ...	9	9	...	...	43	61	17	...
22. Langside, ...	10	10	...	...	43	63	18	...
23. Pollokshields, ...	3	5	...	...	16	24	18	...
24. Kelvinside, ...	5	2	1	...	74	82	179	1
25. Maryhill, ...	13	7	7	...	91	118	375	3
City, ...	220	264	271	87	4,119	4,961	31,654	1,915

TABLE XLVI.—OTHER MATTERS.

CLASS.	Numbers.	
Matters notified to H.M. Inspectors of Factories :—		
Failure to affix Abstract of the Factory and Workshop Act (Section 133),... ..	...	
Action taken in matters referred by H.M. Inspectors as remediable under the Public Health Acts, but not under the Factory Act (Section 5), ...	Notified by H.M. Inspector, ... Reports (of action taken) sent to H.M. Inspectors,	19
Other,... ..		19
Home-work—	Number of	
Lists of Out-workers (Section 107)—	Lists.	Outworkers.
Lists received, ...	902	2,160
Addresses of Out-workers {	Forwarded to other Authorities,	
	Received from other Authorities,	
	299	
	7	
Home-work in unwholesome or infected premises—	Wearing Apparel.	Other.
Notices prohibiting home-work in unwholesome premises (Section 108), ...	...	...
Cases of infectious disease notified in home-workers' premises, ...	...	...
Orders prohibiting home-work in infected premises (Section 110), ...	...	...
Workshops on the Register (Section 131) at the end of 1905—		
Laundries, ...	197	
Workshop Bakehouses, ...	264	
Restaurant Kitchens, ...	256	
Other Food Places, ...	85	
All other Workshops, ...	3,958	
Total Number of Workshops on Register, ...	4,760	

The following abstracts of the Workshops measured and registered during the year have been prepared by the Sanitary Inspector :—

TABLE XLVII.—ABSTRACT of WORKSHOPS MEASURED and REGISTERED during 1905.

Nature of Workshop.	Number of Workshops.	Total Number of Rooms.	Total Number of Men.	Total Number of Women.	Total Young Persons, 14 to 18 Years.	Total Number of Children under 14 Years.	Average Cubic Feet of Space in each Room.	Average Cubic Feet of Space for each Person.
Artificial Limb Maker, ...	1	2	3	3	...	...	1,620	540
Artistic Florist, ...	1	1	...	2	1	...	2,639	879·6
Aerated Water Manufac- turer, ...	1	1	20	3	...	...	103,424	4,496·6
Boot, Shoe, and Slipper Makers, ...	103	110	217	12	13	...	1,949·5	886·1
Bag Makers, ...	5	7	8	45	...	...	6,697·7	868·2
Bamboo Furniture Makers,	2	2	7	...	...	...	3,182·5	909·2
Billiard Table Maker, ...	1	1	2	...	...	...	2,585	1,292·5
Wristle Dressing, ...	1	1	4	...	...	...	4,662	1,165·5
Wicker and Mail-cart Makers, ...	3	6	9	...	2	...	1,754·1	956·8
Wagon Maker, ...	1	2	2	2	2	...	2,727	909
Bottlers, ...	3	5	15	31	3	...	12,383·4	1,263·6
Blacksmiths, ...	6	6	14	...	1	...	4,428·8	1,771·8
Buttermaking, ...	1	2	...	1	...	...	824	824
Boot Polish and Blacking Makers, ...	2	3	2	3	...	...	2,190·3	1,314·2
Birds'-cage Maker, ...	1	1	3	1	1	...	2,353	470·6
Mouse Maker, ...	1	1	...	2	...	...	1,408	704
Black and White Artist,	1	3	3	...	...	...	1,857·6	1,857·6
Brassfinisher, ...	1	1	3	...	...	...	3,927	1,309
Boiler-covering Manufac- turer, ...	1	1	3	...	...	...	79,289	26,429·6
Cabinetmakers and French Polishers, ...	64	97	222	79	27	...	6,630·4	1,930·3
Chair Makers, ...	2	2	7	...	...	...	2,969·5	848·4
Cartwrights, ...	7	17	75	...	8	...	13,788·8	2,824·2
Carvers and Gilders, ...	3	3	9	...	2	...	7,898	2,154
Cork Cutter, ...	1	1	3	...	1	...	23,760	5,940
Cycle Makers and Repairers.	9	11	13	2	2	...	5,018·8	3,246·7
Cigarette Maker, ...	1	1	1	4	2	...	2,528	361·1
Cap Maker, ...	1	1	1	1	...	...	1,830	915
Catler, ...	1	1	2	...	...	...	3,786	1,893
Confectioners, ...	4	7	4	5	4	...	3,061·7	1,648·6
Coopers, ...	6	6	20	...	1	...	8,170·8	2,334·5
Carriage Builders, ...	2	10	38	...	8	...	16,183·4	3,518·1
Dressmakers, ...	133	177	9	970	222	...	2,951·5	435·1
Dentist, ...	1	1	1	...	...	...	1,155	1,155
Draper, ...	1	1	...	1	...	...	1,303	1,303
Electrical Engineers, ...	4	6	25	...	1	...	5,694·5	1,314·1
Engraver, ...	1	...	6	...	2	...	2,613	653·2
Embroiderer, ...	1	2	4	8	4	...	14,809	1,851·1
Enamellers, ...	2	2	4	3	...	...	13,518	3,862·2
Furriers, ...	3	3	4	9	...	...	3,696·6	853
Feather Dresser, ...	1	2	...	3	...	...	2,510·5	1,673·6
Fancy-box Makers, ...	4	6	5	29	11	...	10,403·8	1,387·1
Fishing-tackle Maker, ...	1	1	...	79	13	...	38,780	421·5

ABSTRACT of WORKSHOPS MEASURED and REGISTERED during 1905.—*Continued.*

Nature of Workshop.	Number of Workshops.	Total Number of Rooms.	Total Number of Men.	Total Number of Women.	Total Young Persons, 14 to 18 Years.	Total Number of Children under 14 Years.	Average Cubic Feet of Space in each Room.	Average Cubic Feet of Space for each Person.
Fishcurers, ...	3	3	10	5	...	...	2,986·3	597·2
Firewood Manufacturer,	1	1	4	...	...	...	2,272	568
Farriers, ...	4	4	17	...	1	...	11,220·7	2,493·5
Flag Manufacturer, ...	1	4	2	8	...	...	5,446	2,178·4
Fine Art Needlework, ...	1	1	..	2	...	...	2,700	1,350
Golf-club Maker, ...	1	1	2	...	...	...	1,100	550
Glass Stainers and Embossers, ...	6	13	21	...	5	...	5,804·3	2,902·1
Glaziers, ...	3	3	5	...	2	...	6,714·3	2,877·5
Galvanizers, ...	2		19	...	...	...	21,439	2,256·7
Gas-stove Maker, ...	1	1	1	...	1	...	6,335	3,167·3
Hosiery Manufacturers, ...	2	2	...	11	...	...	4,155	755·4
Ham Curers, ...	3	4	8	...	...	..	4,832·2	2,441·1
Hat-box Maker, ...	1	2	...	2	1	...	1,436	957·3
Hassock Maker, ...	1	1	2	1	3	...	5,719	953·1
Ironmonger and Mill Furnisher, ...	1	1	4	...	...	...	7,934	1,983·5
Joiners, ...	37	41	120	...	21	...	7,931·5	2,306·3
Jewellers, Goldsmiths, Watch and Clock Makers, ...	16	20	48	2	13	...	2,518·2	799·4
Laundries, ...	24	50	1	93	11	...	2,468·9	1,175·6
Lathsplitter, ...	1	1	6	...	...	...	9,975	1,662·5
Lead-worker and Embosser,	1	8	18	3	2	...	6,458·7	2,246·5
Mantle and Costume Makers, ...	3	4	...	26	2	...	3,483	409·7
Milliners, ...	32	37	1	106	35	...	2,217·8	577·8
Model Makers, ...	3	3	6	...	...	...	3,908	1,954
Metal Dealer, ...	1	1	2	...	...	...	6,337	3,168·5
Machine Makers and Repairers, ...	3	3	7	...	1	...	3,493·3	1,310
Millwright, ...	1	3	1	1	...	...	1,500	2,250
Motor Car Repairer, ...	1	1	3	...	...	...	2,160	720
Manufacturing Stationers and Printers, ...	2	2	6	1	5	...	7,281·5	1,213·5
Manufacturing Chemists,	4	9	7	3	2	...	12,023·7	9,017·8
Millstone Builder, ...	1	1		...	...	...	10,498	1,749·6
Metal Refiner, ...	1	1	6	...	...	...	25,486	4,249·1
Metal-plate Worker, ...	1	1	4	...	...	...	6,607	1,651·7
Marine Stores, ...	3	4	3	...	2	...	9,899·5	7,919·6
Optician, ...	1	2	2	...	...	...	3,057·5	3,057·5
Onion Buncher, ...	1	1	5	...	...	..	2,053	410·6
Pattern Weaver, ...	1	2	12	6	3	...	11,271·5	1,073·4
Packing-case Makers, ...	3	4	9	...	...	...	5,848·2	2,599·2
Picture-frame Makers, ...	8	12	22	3	5	...	3,039·5	1,215·8
Photographers, ...	11	20	5	32	2	...	2,251·2	1,154·4
Piano Makers and Repairers,	4	6	6	5	...	...	3,573·3	1,949
Plumbers, ...	17	18	40	9	14	...	4,247·9	1,213·6
Pattern-book Maker, ...	1	1	3	6	3	...	8,090	674·1
Paper-bag Makers, ...	2	2	1	13	6	...	4,764	476·4
Poulterer, ...	1	1	1	...	1	...	7,901	3,450·5
Paint, Oil, and Varnish Manufacturers, ...	5	7	11	2	2	...	71,769·2	33,492·3

TABLE XLVIII.—ABSTRACT of RESTAURANTS MEASURED and REGISTERED during 1905.

[illegible]

TABLE XLIX.—TOTAL NUMBER of WORKSHOPS and EMPLOYEES on the REGISTERS, as at 31st December, 1905.

Nature of Workshop.	Number of Workshops.	Total Number of Men.	Total Number of Women.	Total Young Persons 14 to 18 Years.	Total Number of Children under 14 Years.
Aerated Water Manufacturers, ...	3	22	4	1	..
Artificial Limb Makers, ...	2	7	3	...	...
Artificial Teeth Makers, ...	22	52	2	9	...
Artists and Decorators, ...	2	4	...	1	...
Bakers' Utensil Makers, ...	2	7	...	...	...
Bamboo Furniture Makers, ...	2	7	...	...	..
Basket Makers, ...	7	19	...	3	...
Bedding Manufacturers, ...	16	60	55	10	...
Bellows Makers, ...	2	8	...	..	...
Belt, Brace, and Necklet Makers, ...	2	2	25	13	...
Billiard Table Makers, ...	5	26	29	3	...
Birds'-cage Makers, ...	2	9	2	1	...
Blacksmiths, ...	60	187	...	10	...
Blouse Makers, ...	4	1	39	13	...
Button and Stud Makers, ...	2	2	3	3	...
Boot, Shoe, and Slipper Makers, ...	463	1,226	105	67	...
Bottling and Labelling, ...	20	82	90	37	...
Brassfinishers, ...	5	15	...	5	...
Brush Makers, ...	16	127	39	23	...
Cabinetmakers and French Polishers, ...	194	768	245	107	...
Calenderers, ...	9	84	76	12	...
Card Cutters, ...	5	17	9	...	...
Carvers and Gilders, ...	27	88	1	13	...
Carriage Builders, ...	7	103	...	1	...
Cartwrights, ...	15	127	...	16	...
Children's Outfitters, ...	2	...	29	10	...
China Painting, ...	1	1	6	2	...
Chemical Manufacturers, ...	2	6	1	...	...
Clog Makers, ...	4	13	...	...	...
Coffee Essence Makers, ...	2	21	33	48	...
Coopers, ...	19	92	...	15	...
Confectioners and Preserve Makers, ...	17	31	57	125	...
Coffin Mounting and Shroud Making, ...	10	30	2	6	...
Cork Cutters, ...	12	54	18	22	...
Cutlers, ...	3	5	...	...	...
Curriers and Tanners, ...	5	87	1	2	...
Cycle and Motor Makers and Repairers,	44	91	4	14	...
Die Sinkers, ...	2	12	...	..	...
Drapers, ...	15	14	35	19	...
Dressmakers, ...	533	81	3,030	755	4
Drysalters, ...	2	1	9	5	...
Electrical Engineers, ...	17	84	...	20	...
Electro-platers and Enamellers, ...	4	8	3	1	...
Engravers, ...	26	71	3	44	...
<i>Carry forward, ...</i>	1,614	3,752	3,958	1,436	4

TOTAL NUMBER of WORKSHOPS and EMPLOYEES on the REGISTERS, as at
31st December, 1905.—*Continued.*

Nature of Workshop.	Number of Workshops.	Total Number of Men.	Total Number of Women.	Total Young Persons 14 to 18 Years.	Total Number of Children under 14 Years.
<i>Brought forward,</i>	1,614	3,752	3,958	1,436	4
Envelope Maker, ...	1	4	29	16	...
Embroiderers, ...	9	27	48	25	...
Fancy-box Makers, ...	31	112	473	240	...
Farriers, ...	23	81	...	...	...
Feather Dressers, ...	3	...	7	1	...
File Makers, ...	4	19	1	2	...
Fine Art and Fancy Goods Dealers, ...	4	12	31	10	...
Fishing-tackle Makers, ...	5	4	89	18	...
Fish-bass Makers, ...	2	...	10	4	...
Fish Curers, ...	13	47	27	6	...
Firelight Manufacturers, ...	6	31	9	3	...
Flag Makers, ...	2	2	10	...	...
Fringers, ...	4	2	33	10	...
Furriers, ...	14	30	57	11	...
Galvanizer, ...	1	19	...	...	...
Glass Stainers and Embossers, ...	15	96	18	41	...
Glaziers, ...	25	113	2	21	...
Glass and Emery Paper Makers, ...	2	6	1	7	...
Gold Beaters, ...	2	17	1	...	...
Golf-club Makers, ...	5	13	...	...	...
Gunsmiths, ...	3	8	...	1	...
Hairdressers and Wig Makers, ...	10	27	3	11	...
Ham Curers, ...	8	49	...	2	...
Handkerchief Hemmers, ...	7	13	298	89	...
Hat and Cap Manufacturers, ...	21	32	226	130	...
Heating and Ventilating Engineers, ...	7	47	...	4	...
Horse-shoe Pad Maker, ...	1	6	...	4	...
Hosiery Manufacturers, ...	24	12	153	86	...
India-rubber Stamp Makers, ...	3	5	...	1	...
Indicator Makers, ...	2	19	...	2	...
Ink Manufacturers, ...	2	5	6	6	...
Ironmongers and Mill Furnishers, ...	9	26	...	6	...
Ivory Turners, ...	2	10	...	3	...
Japanners, ...	6	14	10	1	...
Jewel-case Makers, ...	2	16	8	7	...
Jewellers, Goldsmiths, Watch and Clock Makers, ...	140	388	31	89	...
Joiners and Wrights, ...	178	620	...	81	...
Lace Manufacturers, ...	2	1	33	9	...
Last and Boot-tree Makers, ...	2	5	...	1	...
Lathsplitters, ...	3	22	...	5	...
Laundries, ...	220	22	938	199	2
Leather Belt Makers, ...	8	46	1	1	...
Lead Worker and Embosser, ...	1	18	3	2	...
<i>Carry forward,</i>	2,446	5,798	6,514	2,591	6

TOTAL NUMBER of WORKSHOPS and EMPLOYEES on the REGISTERS, as at
31st December, 1905.—*Continued.*

Nature of Workshop.	Number of Workshops.	Total Number of Men.	Total Number of Women.	Total Young Persons 14 to 18 Years.	Total Number of Children under 14 Years.
<i>Brought forward,</i>	2,446	5,798	6,514	2,591	6
Lithographers, ...	16	45	19	21	...
Locksmiths, ...	5	8	...	4	...
Machinists, ...	6	5	41	14	...
Machine Repairers, ...	11	24	1	5	...
Mail-cart Makers, ...	3	11	3	4	...
Mantle and Costume Makers, ...	50	65	900	179	4
Manufacturing Chemists, ...	11	61	24	25	...
Manufacturers and Warehousemen, ...	15	173	435	75	...
Marble Cutters, ...	6	44	...	3	...
Milliners, ...	169	3	574	195	...
Metal Merchants and Refiners, ...	7	22	1	2	...
Meter Fitting and Repairing, ...	2	430	...	...	...
Modellers, ...	2	4	...	...	...
Musical Instrument Makers, ...	16	28	14	8	...
Nail Maker, ...	1	4	...	...	...
Napery Hemming, ...	3	...	16	2	...
Nautical and Scientific Instrument Makers, ...	3	10	...	3	...
Oil, Paint, and Varnish Manufacturers,	8	19	6	4	...
Opticians, ...	9	19	1	5	...
Packing-case Makers, ...	7	51	...	7	...
Packers, ...	4	5	7	6	...
Painters and Decorators, ...	29	128	3	39	...
Pattern Makers, ...	2	10	...	2	...
Pattern-book Makers, ...	10	30	76	53	...
Pattern Weaving and Darning, ...	9	68	28	13	...
Paper-bag Makers, ...	10	13	130	57	...
Pavement-light Maker, ...	1	10	...	2	...
Photographers, ...	39	51	103	35	...
Photo Engravers, ...	2	9	...	2	...
Picture-frame Makers, ...	32	87	12	15	...
Pinafore Makers, ...	3	4	139	70	...
Pickle and Sauce Makers, ...	4	6	10	12	...
Plasterers and Modellers, ...	11	52	10	21	...
Plumbers and Gasfitters, ...	158	458	11	163	...
Polish Manufacturers, ...	4	5	1	1	...
Portmanteau Makers, ...	6	46	10	13	...
Poulterers, ...	5	27	...	4	...
Printers, Bookbinders, and Stationers,	72	435	546	291	...
Preserved Meat Makers, ...	14	16	14	4	...
Rag Sorting and Cleaning, ...	54	55	405	37	...
Rope Makers, ...	2	8	...	...	...
Rubber Manufacturers, ...	2	6	...	...	...
Sack Makers and Repairers, ...	16	22	102	3	...
<i>Carry forward,</i>	3 285	8,375	10,156	3,990	10

TOTAL NUMBER of WORKSHOPS and EMPLOYEES on the REGISTERS, as at
31st December, 1905.—*Continued.*

Nature of Workshop.	Number of Workshops.	Total Number of Men.	Total Number of Women.	Total Young Persons 14 to 18 Years.	Total Number of Children under 14 Years.
<i>Brought forward,</i>	3,285	8,375	10,156	3,990	10
Saddlers, ...	50	224	18	37	...
Sail Maker, ...	1	17	...	...	...
Sausage-skin and Spice Makers, ...	14	56	62	35	...
Saw Makers, ...	6	9	...	2	...
Sculptors, ...	5	18	...	5	...
Shirt Makers, ...	34	98	1,014	78	...
Shop Fitters and Show-case Makers, ...	8	46	4	6	...
Ship-model Makers, ...	2	8	...	2	...
Shawl and Scarf Manufacturers, ..	4	3	45	10	...
Sheet-metal Workers, ...	6	20	...	12	...
Slaters, ...	...	56	...	2	...
Stair Railers, ...	3	18	...	4	...
Straw-board Lining Maker, ...	1	5	6	8	...
Stay Makers, ...	13	7	127	32	...
Stucco Ornament Makers, ...	5	27	3	3	...
Surgical Instrument Makers, ...	3	8	2	3	...
Tailors, ...	655	3,150	1,913	594	...
Tape-line Maker, ...	1	2	3	1	...
Taxidermists, ...	2	3	...	1	...
Ticket Writers, ...	4	17	1	6	...
Tie Makers, ...	2	1	8	7	...
Tile Layers, ...	2	4	...	1	...
Tinsmiths and Coppersmiths, ...	44	54	47	15	...
Tea Blenders and Packers, ...	9	14	16	10	...
Thread Manufacturer, ...	1	6	79	...	...
Tobacco and Cigarette Makers, ...	16	54	153	85	...
Tobacco-pipe Makers, ...	8	46	13	13	...
Trimming and Curtain Frilling, ...	1	1	8	3	...
Trunk Maker, ...	1	10	...	1	...
Umbrella Makers, ...	30	86	247	75	...
Underclothing Manufacturers, ...	59	14	652	150	...
Upholsterers, ...	50	163	160	67	...
Upholstery Trimming Makers, ...	4	8	49	14	...
Waterproof Manufacturers, ...	9	32	50	7	...
Warpers, ...	4	27	35	2	...
Weavers, ...	15	45	21	8	...
Weighing Machine and Scale Makers, ...	5	18	...	4	...
Window Blind Makers, ...	4	6	5	2	...
Wire Workers, ...	10	58	1	14	...
Yarn Winders, ...	2	3	17	...	...
Smaller Trades, ...	4	83	35	41	...
Totals, ...	4,426	12,905	14,950	5,350	10
Restaurants, ...	271	218	742	71	...
Grand Totals, ...	4,697	13,123	15,692	5,421	10

UNDERGROUND BAKEHOUSES (SECTION 101).

At the close of the year there remained on the register 81 underground bakehouses, 32 of which, having had certain alterations carried out during the year, were certified as complying with the requirements of the Act, and making, together with 29 reported in 1904, a total of 61 certified at the close of 1905.

Of the 88 registered at the beginning of the year, 7 were permanently closed as bakehouses during it, making, with those closed during 1901-4, a total of 54 closed since the passing of the present Act.

376 visits of inspection were made during the year to the bakehouses on the register, and from 34 of them 101 samples of air were taken for analysis.

The details for each ward are contained in the following Table:—

TABLE A.—UNDERGROUND BAKEHOUSES.

REPORT OF WORK DONE DURING YEAR 1905.

WARDS.	Closed previous to 1905.	Total on Register at 1st January, 1905.	Closed during 1905.	Total on Register at 31st Dec., 1905.	Certified during 1905.	Inspections.	Air Samples taken.	No. from which Air Samples taken.
1. Dalmarnock, ...	...	1	...	1	1	2	4	1
2. Calton, ...	...	4	1	3	2	13	4	2
3. Mile-end, ...	...	1	...	1	...	2	2	1
4. Whitevale, ...	1	1	...	1	...	7	5	1
5. Dennistoun, ...	1	3	...	3	1	8	1	1
6. Springburn, ...	1	...	...	...	...	...	...	...
7. Cowlairs, ...	...	3	...	3	...	21	4	2
8. Townhead, ...	3	4	...	4	1	38	7	2
9. Blackfriars, ...	6	4	1	3	2	20	6	1
10. Exchange, ...	2	10	1	9	4	49	23	4
11. Blythwood, ...	2	5	...	5	3	21	5	2
12. Broomielaw, ...	3	5	...	5	3	23	1	1
13. Anderston, ...	2	1	...	1	...	12	7	1
14. Sandyford, ...	3	9	...	9	2	35	2	3
15. Park, ...	...	4	...	4	2	11	...	...
16. Cowcaddens, ...	5	9	3	6	3	23	3	2
17. Woodside, ...	3	2	...	2	...	4	...	...
18. Hutchesontown, ...	1	3	...	3	1	10	1	1
19. Gorbals, ...	10	4	...	4	2	22	2	2
20. Kingston, ...	1	2	...	2	2	7	...	1
21. Govanhill, ...	3	4	...	4	1	9	3	...
22. Langside, ...	...	1	...	1	...	6	3	1
23. Pollokshields, ...	...	4	...	4	1	32	11	4
24. Kelvinside, ...	...	2	...	2	...	1	7	1
25. Maryhill, ...	...	2	1	1	1	...	1	...
City, - -	47	88	7	81	32	376	101	34

Condition of Air in Altered Premises certified during 1905.

In 43 samples taken from the 32 bakehouses certified the proportion of CO₂ in parts per 10,000 of air may be grouped as follows :—

CO ₂ per 10,000 parts of Air.	Number of Bakehouses.
— 5	1
— 6	4
— 7	12
— 8	15
— 9	4
— 10	7
	43

COST OF ALTERATIONS.

Through the courtesy of the occupiers or owners of premises which had undergone alterations, I have obtained information regarding the actual costs incurred; and particulars of these, together with the method of ventilation adopted, the size of the fan used, and the cubic capacity in feet are given in the subjoined Table.

The average cost per bakehouse is shown to be £87; but if we deduct the cost in one case in which the structural alterations were extensive and out of all proportion to what was necessary in the others, the average of the 31 remaining is £71.

The method of ventilation adopted and cost of alterations of the underground bakehouses certified during 1905 are contained in the following Table :—

PARTICULARS OF VENTILATION AND COST OF ALTERATIONS OF 32 UNDERGROUND BAKEHOUSES
CERTIFIED DURING 1905.

No.	Cubic Capacity in feet.	METHOD OF VENTILATION.					Cost of Alterations.
		Extraction.		Propulsion.		Without Mechanical Aid.	
		Number of Fans.	Diameter of Fans.	Number of Fans.	Diameter of Fans.		
1	11,961	...	...	...	...	Windows, &c.	£25
2	3,700	...	...	...	...	Windows, &c.	10
3	2,822	...	...	...	...	Windows, &c.	20
4	5,064	One	24 ins.	...	...	...	125
5	7,028	...	...	Two	15 & 18 ins.	...	600
6	6,357	...	...	One	15 ins.	...	80
7	3,763	...	...	One	15 "	...	100
8	90,000	Three	30 ins.	...	...	...	60
9	5,086	One	18 "	...	...	...	200
10	7,003	One	30 "	...	...	...	150
11	3,376	One	24 "	...	...	...	120
12	6,386	One	18 "	...	...	...	75
13	8,380	...	...	One	30 ins.	...	100
14	5,346	...	...	One	12 "	...	75
15	4,141	...	...	One	12 "	...	90
16	3,000	One	24 ins.	...	...	...	250
17	7,000	...	...	...	...	Windows, &c.	...
18	4,543	One	15 ins.	...	...	...	80
19	3,491	One	12 "	...	...	...	120
20	3,500	...	...	One	12 ins.	...	55
21	3,790	...	...	One	7½ ins. press	...	180
22	3,003	...	...	...	...	Windows, &c.	45
23	9,979	Two	15 ins.	One	18 ins.	...	350
24	2,024	...	...	One	15 "	...	150
25	7,288	...	...	One	24 "	...	80
26	2,400	One	18 ins.	...	...	...	100
27	5,086	...	...	...	...	Windows, &c.	75
28	5,131	...	...	...	...	Windows, &c.	25
29	11,644	...	...	One	7 ins. press.	...	200
30	7,222	...	...	...	...	Windows, &c.	70
31	3,069	One	24 ins.	...	...	...	150
32	3,456	...	...	...	...	Windows, &c.	50

Average Cost = £87 per Bakehouse.

Ventilated by extracting fans,	...	...	...	11
Do. by propulsion fans,	...	...	...	11
Do. with both systems combined,	...	...	...	1
Do. without mechanical aid,	...	...	...	9

OVERGROUND BAKEHOUSES.

In view of the results obtained in the underground bakehouses by methods of artificial ventilation, it became important to ascertain how these compared with the ordinary overground bakehouses, and a series of examinations was made with the view of affording information on this point. From 73 overground bakehouses samples of air were taken, and when it is observed that in no fewer than 35 of the total, or nearly one-half, the air impurity exceeds the maximum permitted in underground bakehouses, namely, 10 parts per 10,000, the need for special supervision of their ventilation is apparent. In the following Table the results of the examinations are given, and are graded from best to worst:—

Number of Bakehouses.	CO ₂ per 10,000 parts of Air.
1	4 — 5
5	— 6
5	— 7
10	— 8
10	— 9
7	— 10
10	— 11
10	— 12
5	— 13
2	— 14
2	— 15
3	— 16
2	— 17
1	— 19

The following Table shows the number of overground bakehouses in the individual wards of the City, together with a note of those visited for the purposes of the examination related above :—

TABLE B.—OVERGROUND BAKEHOUSES.

WARDS.	Total on Register at 31st December, 1905.	Inspections.	Air Samples taken.	Bakehouses from which Air Samples were taken.
1. Dalrnarnock, ...	9	9	9	9
2. Calton, ...	19	19	18	18
3. Mile-end, ...	13	11	11	11
4. Whitevale, ...	12	13	11	11
5. Dennistoun, ...	6	6	6	6
6. Springburn, ...	4	5	3	3
7. Cowlairs, ...	2	2	2	2
8. Townhead, ...	10	7	7	7
9. Blackfriars, ...	9	5	4	4
10. Exchange, ...	1	...	...	...
11. Blythswood, ...	1	...	...	...
12. Broomielaw, ...	1	...	...	...
13. Anderston, ...	3	3	2	2
14. Sandyford, ...	7	...	...	...
15. Park, ...	4	...	...	...
16. Cowcaddens, ...	18	...	...	...
17. Woodside, ...	9	...	...	...
18. Hutchesontown, ...	10	1	1	1
19. Gorbals, ...	13	1	1	1
20. Kingston, ...	11	...	...	...
21. Govanhill, ...	5	...	...	...
22. Langside, ...	9	...	...	...
23. Pollokshields, ...	1	...	...	...
24. Kelvinside, ...	...	...	...	...
25. Maryhill, ...	6	...	...	...
City, ...	183	82	75	75

USE MADE OF VENTILATING APPARATUS.

While the mechanical means for the movement of air in overground bakehouses have invariably produced good results in connection with the ventilation of underground bakehouses, it needs no argument to show that their whole value depends on their continued use; and yet this seems not infrequently to be forgotten. A series of inspections established after the installation of the fans, with the view to the discovery of the use made of them, showed that, of 35 bakehouses so visited, 17 had their fans in use and ventilation maintained, while 18 had ceased using them. The following comparison illustrates the difference between their use and non-use in 14 individual bakehouses, where the carbonic acid exceeded 10 parts per 10,000:—

Number of Bakehouses.	CO ₂ per 10,000 parts of Air.	
	During use of Fan and before Certification.	Without Fans in Operation.
3	5 - 7	10 - 12
3	7 - 8	13 - 15
5	5 - 9	16 - 19
3	5 - 7	19 - 23
14		

SANITARY CHAMBERS,
GLASGOW, *July*, 1906.

A. K. CHALMERS, M.D.

APPENDIX A.

REPORT BY DEPUTATION APPOINTED TO ATTEND THE FIRST
"CONGRÈS INTERNATIONAL DES GOUTTES DE LAIT," HELD
AT PARIS, OCTOBER, 1905.

In accordance with the instruction of the Corporation, we attended the above Congress, and beg to submit the following report:—

OBJECTS OF THE CONGRESS.

It is probably natural that in France, where a persistently low birth-rate has assumed something of the importance of a national question, the ravages of infant mortality should not only have attracted widespread interest, but have led to the adoption of organised methods by which it is hoped these may be combated.

What these methods are we propose to describe in some detail subsequently, but here we may indicate their object in the words of the committee which organised the present Congress. Recognising that in France, as elsewhere, among the most potent factors in the production of infant mortality are to be included ignorance or inexperience on the part of mothers and defective artificial feeding, the various organisations which have the reduction of infant mortality as their object conduct, as it were, "training schools for mothers," where they are advised as to the upbringing of their children, and are encouraged to persevere with breast feeding whenever this is possible.

It is only when physiological unfitness to nurse, or the pressure of circumstances compels the abandonment of breast feeding, that artificial nourishment is substituted, and it is to provide this, in a manner which will be subject to some supervision and modification when necessary, that one branch or section of the several organisations—

the *gouttes de lait*,* or infants' milk depôts, as we call them here—have arisen. The object, therefore, of the *gouttes de lait* in France is to protect the lives of children artificially fed, and it was under this title that the Congress was summoned. As has just been stated, however, these depôts are part only of a wider organisation which aims at instructing mothers, and undertakes to supply sterilised or modified milk only when the maternal supply is defective or insufficient.

The Congress had as Honorary President, M. Etienne, Minister of the Interior, and as President, M. Merlou, Minister of Finance, while Madame Loubet, wife of the President of the French Republic, assisted at the official reception of delegates, which preceded the actual work of the Congress. In its organisation the work of the Congress was conducted on lines somewhat different from similar meetings held in this country. Thus, two days were devoted to the reading and discussion of papers, and a similar period was spent in visiting several of the *gouttes de lait* established throughout Normandy—notably those at Rouen, Havre, and Fécamp. Members of Congress were thus afforded an excellent opportunity of observing the practical application of the principles which it was the object of the Congress to discuss. The meetings for discussion were held in the amphitheatre of the Pasteur Institute, and your delegates, in common with the other British members of the Congress, were deeply impressed with the earnestness with which the whole subject of infantile mortality is being considered in France. This was evidenced not only by the number of districts of France represented at the Congress, but by the intimate and practical knowledge of the subject manifested by so many of the members.

In all, ten nationalities were represented, including Belgium, Austro-Hungary, Italy, Norway, Spain, Russia, the Argentine Republic, and the United States. The representatives from Great Britain were few in number, only two Corporations, viz., Huddersfield and Glasgow, being officially represented, although from several towns members of council or officials were present individually.

At the opening meeting the Minister of Finance, who presided, congratulated the Congress on the object of their meeting, and assured the members that the Ministry were at all times ready to afford a large measure of support to work of so much social importance.

M. Merlou was followed by Dr. Roux, Director of the Pasteur Institute, who expressed the opinion that the Congress was animated by the single desire to reduce the risk of disease in children to whom the natural source of nourishment was denied, and showed that the application of the doctrines elaborated by Pasteur had a field of great utility when applied to the reduction of infantile mortality. Among the other speakers, mention may be made of Dr. Variot, who may be regarded as the originator of the "Goutte de lait" in Paris. Dr. Variot claimed recognition for the *gouttes de lait* as engaged in what was essentially a work of philanthropy, because poverty was the principal cause of artificial nourishment, and the risk of death was quadrupled when the substitutes for breast milk were unsuitable in kind or quality. Dr. Dufour, of Fécamp, the organiser of the first provincial *goutte de lait* in France, and by whom the designation was first suggested, followed. He expressed the belief that every mother desired to nourish her offspring. This, however, was frequently impossible, because of certain physical and social—but, above all, of pecuniary—conditions. Artificial nourishment could only be regarded as a misfortune—*faute de mieux*, as he elsewhere epigrammatically expresses it—but it was a misfortune much aggravated when conducted without advice or direction. To supply this direction was the work of the *gouttes de lait*.

The afternoon sitting of the first day of the Congress was occupied in a discussion of papers submitted by Dr. M'Cleary, Medical Officer of Health, Battersea, Dr. G. Variot, of the Belleville Dispensary, Paris, and by Dr. Lust, of Brussels. Dr. M'Cleary's paper presented a history of the movement to provide Infant Milk Depôts in Great Britain, while Dr. Lust followed with a similar description of the movement in Belgium. Dr. Variot chose as the subject of his address the opportunities offered by the *gouttes de lait* for a systematic study of infancy, and treated the subject in a comprehensive manner. Incidentally, the paper was the cause of an animated discussion regarding the distinction between the *gouttes de lait* and the "Consultations de Nourrissons," which latter in this country have no parallel. We purpose, therefore, at this stage, introducing a short description of both organisations.

* Literally "drops of milk," the term obviously having reference to the preparation of small quantities suitable only for a single meal.

It may be said that the earliest efforts in this direction in France to combat the causes of infant mortality began about 15 years ago, when, at the Maternity Hospital of Nancy, a scheme was introduced by which the mothers of children born therein were induced to return with their children for medical examination one month after birth. If the child's condition was found to be satisfactory the mother received a gift of money, and, in the 11 years 1890-1900, a sum of over 25,000 francs was thus distributed.* Two years or so after this Professor Budin introduced at the Charité Hospital, Paris, a development of this system, a "Consultation de Nourrisson," to which children born in this hospital are brought and kept under medical observation during the first two years of life. The mothers are advised as to their children's health; every effort is made to encourage breast feeding, and sterilised milk is supplied where this proves to be quite impossible. But in order to extend the advantages of this supervision to children not born in maternities, "Consultations de Nourrissons" have been established, which are independent of these hospitals. Here a similar supervision is exercised, the mother being required to bring her infant at stated intervals for observation advice and weighing. Although in both cases the child is assumed to be brought irrespective of its state of health, this second form just described is practically an intermediary stage between the Maternity Hospital system and the "Gouttes de lait" or Infants' Milk Depôts, as we know them here. It would appear, however, that many children are brought to the "Gouttes de lait" for the first time only when they have ceased to thrive, or where definite symptoms of ill-health have become established. All have this in common, however, that they give advice to the mothers, and regard medical supervision of the child with periodic registration of its weight and other conditions, as essential to the work.

On the second day of the Congress an invitation was issued to the members to attend and take part in the weekly observation of the children, conducted under Dr. Variot's supervision at the Dispensary of Belleville, and your delegates gladly availed themselves of the opportunity of being present. This dispensary is primarily for sick children, and was established, as it is maintained, by voluntary contributions. The *goutte de lait* is an important addition to the work.

Here for the first time we were introduced to a custom which differs from any existing in this country, and with some slight variation it obtains in all the depôts we subsequently visited. The children attending are divided into three sections, and sterilised milk, adapted in composition and quantity to the child's requirements, is given gratuitously or at a nominal charge (10-15 centimes per day) when the parents are poor, at 2d., or 3d. daily if they belong to the working classes, while from 75 centimes to 1 franc per day is charged where the parents are able to pay. For the more favoured it is a training in practical benevolence, and seems to offer no barrier to the patronage which is extended to these depôts by practically all classes. In some of the depôts the milk is modified and sterilised or pasteurised, in others it is sterilised without modification. In some, sterilisation is done only in the hot months of the year, while pasteurisation is practised in winter.† In some again, as at Rouen, the milk is obtained from a model cow-shed in the suburbs, where it is sterilised immediately on milking; elsewhere the control exercised over the production varies. In all, the periodic examination and weighing of the children is deemed essential.

Meanwhile the sittings of the Congress were being continued, and finally the following resolutions were adopted. Premising that many mothers, especially among the poorer classes, are not able to suckle their children, the Congress agreed that it was desirable:—

- (1) That Local Authorities should take all measures in their power to impress upon mothers the greatly increased liability to disease to which artificially-nourished infants are exposed.

* Those interested in the question may be referred to an interesting manual on "Infant Mortality and Infant-Milk Depôts," by Dr. M'Cleary, and to the October number of "The Practitioner," which is devoted exclusively to a consideration of the subject.

† Sterilisation is conducted at or above the boiling point of water, the object being to destroy micro-organisms and their spores; while for pasteurisation, temperatures not exceeding 150° Fahrenheit are usually employed, and repeated at intervals, if complete sterilisation is aimed at. As the intention is to use most of the milk within 24 hours of its first heating, only in some cases where a longer interval is unavoidable is reheating carried out. In this latter case spores are not destroyed.

- (2) That *gouttes de lait* be established as widely as possible.
- (3) That all *gouttes de lait* be under medical supervision.
- (4) That Local Authorities should encourage and facilitate their development, as well as the popularisation of infantile hygiene, by every available means.
- (5) That rigorous legislation be instituted in all countries for the supervision of milk destined for the food of infants.

With regard to the repeated reference in these resolutions to the need for municipal action, it should be stated that in France almost all the milk depôts and "Consultations de Nourrissons" are conducted on a philanthropic basis. In a few towns only are they municipal institutions, although many receive a subsidy from the municipality. In Paris there are seven "Consultations de Nourrissons," supported by the "Assistance Publique," exclusive of those connected with the Maternity Hospitals. And it may be worth repeating that, theoretically at least, the distinction between the Maternity Hospital and other "Consultations de Nourrisson" and *gouttes de laits* consists in this that the children of the former are under supervision from birth, while in the latter, ill-health may have become established before the aid of the *goutte de lait* is sought. Moreover, in the Maternity Hospital schemes, the mother is induced to bring her child sometimes by the prospect of a donation in money or clothing for the child.

Following the discussions in Paris, the Congress then proceeded to visit the milk depôts in several of the towns in Normandy, especially at Rouen, Havre, and Fécamp. At Rouen the members were received by M. Waddington, Member of Senate, representing the District of the Seine-Inferieure, and thereafter had an opportunity of visiting and observing the methods followed in the local *goutte de lait*. Here also the custom of differentiation existed; so that while the poor were able to obtain a day's supply at 10 centimes, the working classes paid 50 centimes, and the more opulent paid 1 franc. After the working of the local depot had been fully explained, and the method of examination and recording the condition of the children witnessed, the model cow-shed in the country from which the milk is obtained was visited. This farm is situated on the hills surrounding Rouen, and the method of housing, feeding, and bedding of the milk animals was carefully explained by M. Destin, the owner. It was stated that no cow is added to the stock until at least 15 days after calving. Your delegates were impressed with the ample cubic space allowed per animal, and with the stalling of the animals in the middle of the byre. Here, as has been said, the milk is sterilised immediately (within 30 minutes) after the milking, and it was stated also that the milking was performed at a specially-prepared portion of the byre, removed from the stalls. This, however, failed to impress your delegates so much as open-air milking, which they saw practised elsewhere in Normandy on the following day, although it carried with it a definite recognition that the place where an animal is bedded is open to objection as a suitable place for milking it.

The Congress then proceeded to Havre, and on the following morning were conducted to the local *goutte de lait* by Dr. Caron, the founder of the institution. Here as in some of the other depôts, periodic examination and weighing of the child every fifteenth day is obligatory—*i.e.*, unless this condition is complied with depot milk is not to be obtained. As in most of the other depôts visited, a chart is constructed of the weights recorded, and plotted out on a card which has the normal curve of the increase in weight of a healthy child inscribed for comparison. Here the children are supplied with unmodified milk, restricted in quantity, however, for the first few days after joining the depôt. For each child two sets of bottles are retained, each bearing a number corresponding to that which is placed against the child's name in the register. There is also a graded scale of prices for each day's supply. An indication of the value which is attached to these depôts in France is afforded by the number of children fed daily at this depot in Havre. With a population at the present time probably not exceeding 130,000, 258 children are being fed daily on depôt milk.

The next visit of the Congress was to the picturesque Normandy village of Fécamp (population about 15,000), where members were received by the mayor and municipality, and by Dr. Dufour, who conducted them over the institution which has found so many imitators in various parts of the world. The practice followed here does not differ in essentials from what has been described in connection with the depôts visited at earlier meetings, but the importance attached in France to the work here inaugurated was

evidenced by the circumstance that the name of the town was enrolled on the list of honorary members of the Congress. As has been said, the first modern *goutte de lait* was established here, and Dr. Dufour claims to have reduced the mortality among hand-fed children by about 8 per cent. by this means alone.

So far we have confined ourselves in this report to a simple record of the work of the Congress, and it is obvious, whatever view may be taken of the question of a pure as distinguished from a pasteurised milk supply, that, for the present, France is convinced that the former is not immediately attainable, and that the question of her infant mortality is much too urgent to admit of temporising until the conditions of milk production can be improved, or raised generally to the standard of structure and handling which a pure milk supply requires. It is true that she has a law generally applicable, and corresponding to some extent in its aims, to the Cowshed and Milk Shops Order of this country, but failing in its effect, apparently, by defective administration. Even so, however, it has frequently been pointed out that the Dairy Order in this country has failed to produce a milk supply free from gross contamination, quite irrespective of the presence of infectious disease. Where France, however, at the present moment, leads in this question is in the recognition that the magnitude of its infantile mortality demands specific effort for its reduction, and it would appear that she has entered on the work with an enthusiasm which contrasts strangely with the apathy prevailing in the public mind of this country with regard both to birth-rate and the mortality of infants.

So greatly impressed indeed were the English members of the Congress with this contrast, that they unanimously signed and presented a short memorial to the members of the Corporations of Huddersfield and Glasgow present at the Congress, urging them to take such steps as they thought necessary in order to promote a British conference on the whole question at an early date.

In conclusion, your delegates would repeat that in France maternity hospitals and voluntary organisations, as well as some municipalities, are at work mutually assisting each other in the solution of a national question—a question, moreover, which in this country at least, is attracting little attention, save from a few local authorities and medical societies.

It is obvious also that in so large a field there may be many workers, just as there may be several methods, but your delegates may quote a passage from a paper submitted to the Congress on behalf of the Hon. Nathan Strauss, of New York, whose name is so well known in connection with his efforts to place a suitable food for artificially-fed infants within the reach of the poor of that city.

Mr. Strauss' first dépôt was established in 1893, and, in 1902, 14 were in operation in New York, while similar depôts had been opened in Brooklyn, Philadelphia, and other American cities. After prolonged experience he says:—"My recommendation is that the pasteurisation of the entire milk supply be made a function of the municipality." This he says notwithstanding that the supply of the New York depôts is obtained from sources which are certified by the New York Milk Commission, and the farms and cows from which it is obtained are inspected by the Officers of the New York Board of Health. The results obtained are worthy of note, and may best be presented in the following extracts from his communication to the Congress:—

An examination of the official statistics of the Health Board (New York) for the three hottest months of the year—June, July, and August, when the peril to child life is greatest and the distribution of pasteurised milk has been on the largest scale—is the best demonstration of the value of my work.

DEATHS AND DEATH-RATE OF CHILDREN UNDER FIVE YEARS OF AGE.

For the months of June, July, and August.

Year.			Population.	Deaths.	Death-rate.
1891	...	...	188,703	5,945	126·4
1892	...	...	194,214	6,612	136·1
1893	...	...	199,886	5,892	117·0
1894	...	...	205,723	5,788	112·6
1895	...	...	212,983	6,183	116·1

Year.		Population.	Deaths.	Death-rate.
1896	...	218,544	5,671	103·8
1897	...	222,387	5,401	90·7
1898	...	226,515	5,047	89·1
1899	...	230,842	4,689	81·2
1900	...	235,386	4,562	77·5
1901	...	240,166	4,642	77·3
1902	...	245,201	4,389	71·6
1903	...	250,518	4,037	64·5
1904	...	256,137	4,805	74·5
1905	...	262,091	4,892	74·1

"Confining the comparison to deaths from diarrhoeal diseases during the two most fatal months of the year—July and August—we find the following state of affairs:—For the three years 1890-1892, the total number of deaths from diarrhoeal diseases during the months of July and August was 6,122; for the three years 1894-1896, the total number during the same two months was 5,262, showing a decrease of 860 deaths, with an increase of average population from 1,700,000 to 1,970,000; for the three years 1897-1899, the total number during the same two months was 4,050, showing a still further saving of 1,212, with a still greater population.

"These figures speak eloquently of the effect on infantile mortality in New York City, produced by pasteurising a comparatively small part of the milk consumed. I shall now tell of an experiment conducted on a smaller scale, more thorough in method, and therefore in its bearing on the general problem of the prevention of infantile mortality, most important, most convincing, and in the highest degree satisfactory.

"In the Infant Asylum at Randall's Island the death-rate was so high that it became a matter of grave concern. The officials then got their own herd of cows, which were kept on the island, carefully pastured, and apparently perfect in health. Thus gradually they succeeded in reducing the death-rate until, in 1898, the official statistics showed it to be 44·36 per cent. At that time I was President of the Board of Health, which brought this institution under my direct charge, and gave me an insight into these appalling conditions. After I resigned from this office I installed at this island a complete plant for the pasteurisation of milk. For the three years preceding this installation the ratio of deaths to the number of children under treatment was as follows:—

1895.	Children treated,	...	...	...	1,216
	Deaths,	...	...	...	511
				42·02 per cent.	
1896.	Children treated,	...	...	...	1,212
	Deaths,	...	...	...	474
				39·11 per cent.	
1897.	Children treated,	...	...	...	1,181
	Deaths,	...	...	...	524
				44·36 per cent.	

The pasteurising plant was installed in the early part of 1898, and the death-rate immediately dropped, as follows:—

1898.	Children treated,	...	...	...	1,284
	Deaths,	...	...	...	255
				19·80 per cent.	
1899.	Children treated,	...	...	...	1,097
	Deaths,	...	...	...	269
				24·52 per cent.	
1900.	Children treated,	...	...	...	1,084
	Deaths,	...	...	...	300
				27·68 per cent.	
1901.	Children treated,	...	...	...	1,028
	Deaths,	...	...	...	186
				18·09 per cent.	

1902.	Children treated,	...	...	...	...	820
	Deaths,	...	...	...	...	181
						22·07 per cent.
1903.	Children treated,	...	...	...	...	542
	Deaths,	...	...	...	...	101
						18·63 per cent.
1904.	Children treated,	...	...	...	...	345
	Deaths.	...	...	...	...	57
						16·52 per cent.

"Let us now consider these cold figures, carrying with them most positive and powerful evidence of the benefit of my work. Had the same ratio of deaths to the number of children treated been maintained in this institution during the last seven years which prevailed during the preceding three years, the number of deaths would have been 2,604 instead of 1,343.

"It would be difficult to find a more impressive demonstration of the value of the use of pasteurised food in the feeding of infants. THE DEMONSTRATION WAS ALL THE MORE STRIKING BECAUSE NO OTHER CHANGE HAD BEEN MADE IN RESPECT TO EITHER DIET OR HYGIENE IN THE MANAGEMENT OF THE INSTITUTION. These unusual results, exceeding all accomplished in the city, were due to the fact THAT THE MILK WAS PASTEURISED SOON AFTER BEING MILKED, SO THAT BACTERIA COULD NOT MULTIPLY TO ANY GREAT EXTENT BETWEEN THE TIME OF MILKING AND THE PROCESS OF MAKING IT STERILE.

"The experiment on Randall's Island and its success are of the greatest significance. The fact that my milk depôts had a perceptible influence in lowering the annual infant mortality of New York forced the conclusion upon me that if the work of these depôts were so extended as to include practically the whole milk supply of the infant population of the city, it would make a much more decided reduction in the death-rate."

In Paris, also, your delegates had an opportunity of visiting one of the milk depôts conducted under the direction of M. Rothschild, where sterilised whole milk is sold in bottles at prices which bring it within easy reach of the working classes, and is given gratuitously to the indigent poor.

Regarding the actual equipment of the depôts which were visited, it is putting it quite modestly to say that the premises in Osborne Street would compare very favourably with any we saw. But it is in the vigorous use which France makes of its voluntary methods of assistance that we lose by comparison. Although throughout France about 100 such depôts are established, in only one or two towns are they municipal institutions. Their success, therefore, must be attributed to the impression which they have made on the minds of the people generally. To members of Council who are familiar with the work presently being undertaken at the Osborne Street Dépôt and its branches, many directions for extended effort will be suggested by what has just been said. We may hold to our conviction that the ideal milk supply is a pure milk, but trade customs, as well as social habits, are not to be changed rapidly, and so long as the prevailing conditions in cow-sheds are as we know them to be,* and so long as domestic customs expose milk to all the dust impurities which permeate the air of so many of our houses, infant milk depôts should form the centre of a wide field of social and hygienic activity, which should be of inestimable value to the community. In many directions we hope to see the work of the milk depot amplified and extended.

W. FLEMING ANDERSON,

Chairman of the Committee on Health.

A. K. CHALMERS.

Medical Officer of Health.

CITY CHAMBERS,
GLASGOW, 2nd November, 1905.

* Within the past few years many of the milk purveyors in Glasgow have adopted a custom of "heating" ("sterilising" it is called, although the temperatures reached fall short of what is required for this purpose) much of milk—especially "trained" milk—which they purvey, so that the growth of germ life, which causes "souring," may be delayed.

A P P E N D I X B.

TABLE I.—GLASGOW.—POPULATION ; BIRTHS and DEATHS ; BIRTH-RATES and DEATH-RATES per 1,000, also DEATHS under 1 YEAR and DEATH-RATES under 1 YEAR per 1,000 BORN, from 1855 to 1905.

Year.	Population.	Births.	Deaths.	Birth-rate per 1,000.	Death-rate per 1,000.	Deaths under 1 Year.	
						Number.	Rate per 1,000 born.
1855	356,355	13,242	10,655	37·2	29·9	2,600	196
1856	362,606	15,170	10,298	41·8	28·4	2,713	179
1857	369,318	15,706	11,375	42·5	30·8	2,851	182
1858	376,131	15,889	11,472	42·2	30·5	2,846	179
1859	382,756	15,947	10,832	41·6	28·3	2,448	154
1860	389,843	15,943	12,436	40·8	31·9	2,905	182
1861	397,673	16,537	10,936	41·6	27·5	2,544	154
1862	405,789	16,400	11,565	40·4	28·5	2,562	156
1863	413,944	16,986	13,329	41·0	32·2	2,774	163
1864	420,738	17,411	13,674	41·4	32·5	3,051	175
1865	428,123	17,956	13,914	41·9	32·5	3,097	173
1866	437,850	18,288	12,829	41·8	29·3	2,905	159
1867	446,028	18,347	12,578	41·1	28·2	2,895	158
1868	455,000	18,607	13,832	40·9	30·4	3,127	168
1869	464,332	18,495	15,648	39·8	33·7	3,411	184
1870	471,453	19,355	13,955	41·1	29·6	2,991	155
1871	491,900	18,867	15,790	38·4	32·1	3,608	191
1872	494,824	20,158	14,053	40·7	28·4	3,198	159
1873	494,847	19,487	14,499	39·4	29·3	3,255	167
1874	498,270	20,039	15,845	40·2	31·8	3,240	162
1875	499,480	20,825	15,384	41·7	30·8	3,388	163
1876	502,299	20,981	13,763	41·7	27·4	3,166	151
1877	504,487	21,124	13,823	41·9	27·4	3,106	147
1878	507,420	20,622	14,157	40·6	27·9	3,285	159
1879	508,048	19,751	12,498	38·8	24·6	2,504	127
1880	509,732	18,912	13,304	37·1	26·1	2,842	150
1881	512,034	19,106	12,916	37·3	25·2	2,745	144
1882	517,904	19,735	13,046	38·1	25·2	2,959	150
1883	523,154	19,911	14,577	38·1	27·9	3,091	155
1884	528,459	20,557	13,942	38·9	26·4	3,094	151
1885	533,817	19,861	13,492	37·2	25·3	3,100	156
1886	539,231	19,862	13,104	36·8	24·3	2,786	140
1887	544,700	19,328	12,135	35·5	22·3	2,676	138
1888	550,226	19,309	11,681	35·1	21·2	2,560	133
1889	555,808	19,503	13,139	35·1	23·6	3,008	154
1890	561,447	19,279	13,374	34·3	23·8	2,880	149
1891	567,143	19,857	14,324	35·0	25·3	2,946	148
1892	669,059*	22,815	15,218	34·1	22·7	3,168	139
1893	677,883	23,173	15,798	34·2	23·3	3,649	157
1894	686,820	22,644	13,673	34·0	19·9	2,937	130
1895	695,876	22,803	16,344	32·8	23·5	3,538	155
1896	705,052	24,029	14,385	34·1	20·4	3,278	136
1897	714,919	23,880	15,727	33·4	22·0	3,826	160
1898	724,349	24,262	15,333	33·5	21·2	3,792	156
1899	733,903	24,249	15,828	33·0	21·6	3,696	152
1900	743,969	24,362	16,393	32·7	22·0	3,778	153
1901	764,467	24,206	16,197	31·7	21·2	3,607	149
1902	775,601	24,722	15,532	31·9	20·0	3,206	129
1903	786,897	25,135	15,073	31·9	19·0	3,663	146
1904	798,357	24,754	15,414	31·0	19·3	3,606	146
1905	809,986	24,316	14,460	30·0	17·9	3,195	131

* Extended City.

The figures in this Table are taken from the Registrar-General's Reports.

TABLE II.—GLASGOW, 1905.—ESTIMATED POPULATION; BIRTHS; ILLEGITIMATE BIRTHS; and DEATHS at all AGES and at CERTAIN PERIODS of LIFE, and their PROPORTION to the POPULATION in each MUNICIPAL WARD.

MUNICIPAL WARDS.			ESTIMATED POPULATION.			BIRTHS.		ILLEGITIMATE BIRTHS.		DEATHS, ALL AGES.		DEATHS AT CERTAIN PERIODS OF LIFE.						
			Without Institutions and Shipping.	Institutions and Shipping.	Total.	Number	Rate per 1,000 Living.	Number.	Percentage of Total Births.	Number.	Rate per 1,000 Living.	Under 1 Year.	1-5 Years.	5-15 Years.	15-20 Years.	20-25 Years.	25-60 Years.	60 Years and above.
1. Dalmarnock,	...	...	49,408	588	49,996	2,012	40.7	88	4.4	984	19.9	284	195	66	18	24	253	144
2. Calton,	...	...	36,881	2,051	38,932	1,277	34.6	101	7.9	771	20.9	190	143	43	23	12	219	141
3. Mile-end,	...	...	43,292	156	43,448	1,774	41.0	102	5.7	870	20.1	220	199	46	16	33	224	132
4. Whitevale,	...	...	32,877	854	33,731	1,062	32.3	84	7.9	637	19.4	160	129	35	14	17	166	116
5. Dennistoun,	...	...	35,321	1,744	37,065	1,035	29.3	40	3.9	416	11.8	79	62	16	10	13	127	109
6. Springburn,	...	...	42,094	3,764	45,858	1,700	40.4	78	4.6	733	17.4	220	164	37	15	27	179	91
7. Cowlands,	...	...	30,939	...	30,939	1,124	36.3	57	5.1	481	15.5	136	87	24	16	16	132	70
8. Townhead,	...	...	38,856	24	38,880	1,201	30.9	95	7.9	718	18.5	180	127	32	14	13	207	145
9. Blackfriars,	...	...	22,122	958	23,080	702	31.7	91	13.0	457	20.7	111	79	26	7	10	132	92
10. Exchange,	...	...	2,117	505	2,622	36	17.0	12	33.3	39	18.4	5	6	1	...	1	12	14
11. Blythwood,	...	...	3,329	426	3,755	32	9.6	4	12.5	38	11.4	7	1	...	2	1	13	14
12. Broomielaw,	...	...	7,726	1,560	9,286	230	29.8	27	11.7	170	22.0	32	28	9	4	5	67	25
13. Anderston,	...	...	29,588	1,469	31,057	949	32.1	52	5.5	542	18.3	153	107	25	12	8	145	92
14. Sandyford,	...	...	25,668	98	25,766	637	24.8	49	7.7	448	17.5	99	78	24	8	12	140	87
15. Park,	...	...	25,017	844	25,861	276	11.0	39	14.1	262	10.5	23	17	7	3	8	83	121
16. Cowcaddens,	...	...	37,344	1,132	38,476	1,190	31.9	128	10.8	800	21.4	209	138	40	22	17	246	128
17. Woodside,	...	...	44,207	184	44,391	1,325	30.0	61	4.6	632	14.3	163	101	28	11	17	182	130
18. Hutchesontown,	...	...	40,488	6	40,494	1,533	37.9	94	6.1	805	19.9	205	170	38	17	27	226	122
19. Gorbals,	...	...	36,074	835	36,909	1,037	28.7	76	7.3	612	17.0	126	117	44	11	12	184	118
20. Kingston,	...	...	34,566	611	35,177	1,066	30.8	71	6.7	604	17.5	135	109	38	15	24	167	116
21. Govanhill,	...	...	33,760	...	33,760	1,203	35.6	42	3.5	463	13.7	119	90	26	12	16	121	79
22. Langside,	...	...	36,026	363	36,389	721	20.0	18	2.5	313	8.7	28	23	8	12	11	113	118
23. Pollokshields,	...	...	17,843	...	17,843	175	9.8	7	4.0	153	8.6	11	8	3	1	3	51	76
24. Kelvinside,	...	...	20,647	681	21,328	260	12.6	16	6.2	147	7.1	21	12	7	4	4	40	59
25. Maryhill,	...	...	38,972	1,459	40,431	1,562	40.1	84	5.4	558	14.3	160	105	26	17	15	150	85
— Institutions and Harbour,	...	...	...	...	...	56	...	28	50.0	1,105	...	85	46	32	17	29	474	422
CITY,	...	...	765,162	20,312	785,474	24,175	30.8	1,544	6.4	13,758	17.5	3,161	2,341	681	301	375	4,053	2,846

TABLE III.—GLASGOW.—DEATHS at all AGES from DIFFERENT DISEASES in each MUNICIPAL WARD during 1905.

MUNICIPAL WARDS.	All Causes.	Smallpox.	Diphtheria and M. Group.	Scarlet Fever.	FEVERS.			Whooping-cough.	Diarrhoea.	Septic Diseases.	TUBERCULAR DISEASES.		Cancer, Malignant Diseases.	Diseases of Nervous System.	Diseases of Circulatory System.	Group.	Diseases of Respiratory System.	Violence.	Premature Births.	Uncertified.	All Other Causes.
					Typhus.	Enteric.	Undefined.				Pulvisis.	Other than Pulvisis.									
1. Dalmarnock,	984	...	8	3	5	8	...	65	56	12	60	80	39	97	71	5	173	26	47	...	175
2. Calton, ...	771	...	4	7	1	3	...	28	35	6	66	53	17	58	69	1	160	19	30	9	166
3. Mile-end, ...	870	...	8	3	2	2	...	40	44	9	73	51	27	57	69	2	188	35	29	2	173
4. Whitevale, ...	637	...	5	3	...	3	...	41	24	2	54	47	29	68	50	5	119	26	16	1	120
5. Dennistoun, ...	416	...	3	...	1	3	...	12	9	8	41	30	22	45	38	...	68	12	13	...	99
6. Springburn, ...	733	...	5	2	1	3	...	57	37	3	54	33	25	49	52	6	150	22	44	1	155
7. Cowlands, ...	481	...	5	...	...	2	...	24	16	5	35	39	18	46	40	1	112	13	20	...	85
8. Townhead, ...	718	...	5	...	...	6	...	31	27	5	43	49	28	72	67	3	171	13	22	9	143
9. Blackfriars, ...	457	...	2	1	...	1	...	23	17	2	43	22	9	41	42	1	116	17	12	3	85
10. Exchange, ...	39	...	...	...	...	...	...	2	...	...	2	2	2	6	6	...	8	1	2	...	8
11. Blythswood, ...	38	...	...	...	...	...	...	...	2	...	...	3	3	4	8	...	4	1	...	...	12
12. Broomielaw, ...	170	...	1	...	...	1	...	11	9	3	15	5	9	21	8	...	35	9	1	5	30
13. Anderston, ...	542	...	10	...	1	1	...	27	46	6	31	35	26	36	48	4	104	21	20	...	103
14. Sandyford, ...	448	...	5	2	...	1	...	27	21	1	37	24	22	34	42	...	99	13	12	...	87
15. Park, ...	262	...	1	2	...	...	...	3	3	1	17	9	22	34	55	...	28	3	6	1	73
16. Cowcaddens, ...	800	...	3	...	...	3	...	42	44	4	55	49	28	60	61	2	238	33	20	2	140
17. Woodside, ...	632	...	4	...	...	...	...	24	21	4	44	32	33	52	55	2	139	22	27	...	153
18. Hutchesontown, ...	805	...	9	4	...	5	...	49	27	9	55	50	28	68	63	6	161	31	18	6	164
19. Gorbals, ...	612	...	6	...	...	2	...	24	17	5	41	46	16	50	60	2	150	19	22	2	125
20. Kingston, ...	604	...	8	3	3	4	...	17	17	8	47	36	20	54	61	3	133	13	17	...	128
21. Govanhill, ...	463	...	1	...	...	1	...	31	22	6	38	44	16	37	28	3	84	15	16	...	97
22. Langside, ...	313	...	3	1	...	1	...	7	6	10	21	13	20	31	47	1	47	5	6	...	94
23. Pollokshields, ...	153	...	1	1	...	...	...	2	3	1	6	9	16	18	28	...	17	5	1	...	44
24. Kelvinside, ...	147	...	1	...	...	...	...	5	5	4	8	9	7	19	18	...	14	2	3	...	51
25. Maryhill, ...	558	...	9	1	...	1	...	29	31	5	40	34	25	34	38	3	118	13	27	...	124
— Institutions, ...	1,105	...	...	2	...	2	...	...	43	1	203	39	52	112	150	...	167	82	4	9	223
CITY, ...	13,758	1	107	35	14	53	...	621	582	120	1,129	843	559	1,203	1,274	50	2,803	471	435	50	2,857

TABLE IV.—GLASGOW.—DEATH-RATES per MILLION from DIFFERENT DISEASES in each MUNICIPAL WARD during 1905.

MUNICIPAL WARDS.	All Causes.	Smallpox.	Diphtheria and Membranous Group.	Scarlet Fever.	FEVERS.			Measles.	Whooping-cough.	Diarrhoea.	Septic Diseases.	TUBERCULAR DISEASES.		Cancer, Malignant Diseases.	Diseases of Nervous System.	Diseases of Circulatory System.	Croup.	Diseases of Respiratory System.	Violence.	Premature Birth.	Uncertified.	All Other Causes.
					Typhus.	Enteric.	Undeclared.					Phthisis.	Other than Phthisis.									
1. Dalnarnock,	19,916	...	162	61	101	162	...	1,093	1,316	1,133	243	1,214	1,619	789	1,963	1,437	101	3,501	526	951	...	3,542
2. Calton, ...	20,905	...	108	190	27	81	...	1,057	759	949	163	1,790	1,437	461	1,573	1,871	27	4,338	515	813	244	4,501
3. Mile-end,	20,096	...	185	69	46	46	...	1,294	924	1,016	208	1,686	1,178	624	1,317	1,594	46	4,343	808	670	46	3,996
4. Whitevale,	19,375	...	152	91	...	91	...	730	1,247	730	61	1,642	1,430	882	2,068	1,521	152	3,620	791	487	30	3,650
5. Dennistoun,	11,778	...	85	...	28	85	...	340	340	255	226	1,161	849	623	1,274	1,076	...	1,925	340	368	...	2,803
6. Springburn,	17,413	...	119	48	24	71	...	808	1,354	879	71	1,283	784	594	1,164	1,235	143	3,563	523	1,045	24	3,682
7. Cowlands,	15,547	...	162	...	...	65	...	646	776	517	162	1,131	1,261	582	1,487	1,293	32	3,620	420	646	...	2,747
8. Townhead,	18,478	...	129	...	...	154	...	618	798	695	129	1,107	1,261	721	1,853	1,724	77	4,401	335	566	232	3,680
9. Blackfriars,	20,658	...	90	45	...	45	...	904	1,040	768	90	1,944	994	407	1,853	1,899	25	5,244	768	542	136	3,842
10. Exchange,	18,422	...	...	...	...	...	...	...	945	...	...	945	945	945	2,834	2,834	...	3,779	472	945	...	3,779
11. Blythwood,	11,415	...	...	...	...	...	...	300	...	601	...	...	901	901	1,202	2,403	...	1,202	300	...	...	3,605
12. Broomielaw,	22,004	...	129	...	...	129	...	906	1,424	1,165	388	1,491	647	1,165	2,718	1,035	...	4,530	1,165	129	647	3,883
13. Anderston,	18,318	...	338	...	34	34	...	777	913	1,555	203	1,048	1,183	879	1,217	1,622	135	3,515	710	676	...	3,481
14. Sandyford,	17,454	...	195	78	...	39	...	818	1,052	818	39	1,441	935	857	1,325	1,636	...	3,857	506	468	...	3,389
15. Park, ...	10,473	...	40	80	...	...	...	160	120	120	40	680	360	879	1,359	2,199	...	1,119	120	240	40	2,918
16. Cowcaddens,	21,422	...	80	...	...	80	...	428	1,125	1,178	107	1,473	1,312	750	1,607	1,633	54	6,373	884	536	54	3,749
17. Woodside,	14,296	...	90	...	...	...	...	452	543	475	90	995	724	747	1,176	1,244	45	3,144	498	611	...	3,461
18. Hutchesontown,	19,882	...	222	99	...	123	...	1,260	1,210	667	222	1,358	1,235	692	1,680	1,556	148	3,976	766	445	148	4,051
19. Gorbals, ...	16,965	...	166	...	...	55	...	693	665	471	139	1,137	1,275	444	1,386	1,663	55	4,158	527	610	55	3,465
20. Kingston,	17,474	...	231	87	87	116	...	926	492	492	231	1,360	1,041	579	1,562	1,765	87	3,848	376	492	...	3,703
21. Govanhill,	13,714	...	30	...	...	30	...	711	918	652	178	1,126	1,303	474	1,096	829	89	2,488	444	474	...	2,873
22. Langside,	8,688	...	83	28	...	28	...	...	194	167	278	583	361	555	860	1,305	28	1,305	139	167	...	2,609
23. Pollokshields,	8,575	...	56	56	...	...	...	56	112	168	56	336	504	897	1,009	1,569	...	953	280	56	...	2,466
24. Kelvinside,	7,120	...	48	...	...	...	...	48	242	242	194	387	436	339	920	872	...	678	97	145	...	2,470
25. Maryhill,	14,318	...	231	26	...	26	...	667	744	795	128	1,026	872	641	872	975	77	3,028	334	693	...	3,182
— Institutions,	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
CITY, ...	17,517	1	136	45	18	67	...	701	791	741	153	1,437	1,073	712	1,532	1,622	64	3,569	600	554	64	3,637

TABLE V.—GLASGOW.—CASES of INFECTIOUS DISEASE REGISTERED in each MUNICIPAL WARD, showing those TREATED in HOSPITAL, for the YEAR 1905.

INFECTIOUS DISEASE (NOTIFICATION) ACT, 1889.										OTHER INFECTIOUS DISEASES.										TOTAL CASES.									
FEVERS.										ALL CAUSES.										TOTAL VISITATIONS.									
Typhus.		Enteric.		Continued and Undefined.		Puerperal.		Smallpox.		Scarlet Fever.		Diphtheria and Membranous Group.		Erysipelas.		Anthrax.		Measles.		Whooping-cough.		Chickenpox.		Phthisis.		For Infectious Diseases.	Cases found.	TOTAL CASES.	
Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.	Hosp.	Home.				Hosp.	Home.	Hosp.	Home.
17	...	34	3	3	...	11	1	...	...	52	2	40	7	22	35	...	...	163	1,006	63	97	5	4	15	37	9,743	35	1,617	
5	...	27	1	4	...	4	...	...	...	44	1	30	7	20	37	...	...	168	439	54	41	8	4	19	48	6,477	53	961	
9	...	33	1	1	...	5	1	...	...	66	...	35	2	16	36	...	...	154	839	72	90	10	17	20	77	6,788	210	1,486	
...	...	17	3	...	...	3	1	...	...	36	4	24	5	16	30	...	...	93	344	30	96	4	1	17	55	4,055	82	779	
1	...	14	4	...	...	3	1	...	...	36	8	28	6	2	26	...	...	40	455	7	48	...	12	10	40	9,083	130	741	
1	...	21	...	...	1	5	...	...	...	31	2	41	4	11	25	...	...	68	674	37	91	3	11	19	57	9,731	56	1,102	
2	...	16	...	...	...	4	1	...	...	21	...	31	3	10	27	...	...	23	465	11	118	...	6	7	46	7,188	32	791	
1	...	24	1	...	...	2	1	...	...	54	1	26	1	8	25	...	...	83	451	21	61	2	7	16	64	6,135	78	849	
1	...	9	...	1	...	4	...	...	...	21	...	10	2	14	30	...	...	101	323	33	53	6	17	3	48	5,625	35	676	
...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	2	...	...	6	19	7	1	...	...	2	3	333	2	42	
...	...	1	...	...	...	...	...	...	...	2	...	1	...	2	...	...	...	6	19	...	...	...	...	...	1	260	1	32	
...	...	2	...	...	...	2	1	...	...	11	...	7	2	3	5	...	...	11	53	5	18	1	5	6	11	2,361	36	143	
...	...	6	1	1	...	2	3	...	...	23	3	24	4	6	28	...	...	44	450	21	44	8	21	11	36	6,287	151	738	
...	...	12	...	...	...	2	...	...	...	22	4	29	3	9	27	...	...	55	310	39	91	...	4	9	41	5,882	133	657	
...	...	1	1	...	...	1	...	...	...	19	5	10	5	5	26	...	...	13	87	3	5	...	...	1	21	1,611	13	203	
1	...	37	...	2	...	7	1	...	...	35	...	24	5	28	34	...	...	74	314	47	80	7	8	30	91	10,407	38	825	
...	...	28	2	...	...	2	1	...	...	33	6	27	9	11	23	...	...	63	754	14	155	...	2	15	55	7,215	38	1,200	
...	...	34	2	1	...	6	...	...	...	59	1	46	2	18	62	...	...	107	925	32	117	8	8	3	67	9,029	147	1,499	
...	...	10	1	2	...	4	4	...	...	25	2	22	8	13	42	...	...	35	522	14	49	2	...	4	47	7,355	64	807	
11	...	15	2	...	...	4	1	...	...	77	8	25	6	10	36	...	...	120	650	9	55	3	32	5	63	7,271	52	1,132	
...	...	8	2	1	...	5	2	...	...	47	2	24	4	11	34	...	...	86	605	16	93	...	6	4	42	7,702	119	992	
...	...	3	8	...	...	2	2	...	...	45	40	10	25	...	30	...	...	5	156	5	31	...	3	2	23	5,476	1	390	
...	...	6	4	...	...	...	...	...	...	11	13	5	13	...	8	...	...	8	6	8	11	7	...	...	12	4,616	8	112	
...	...	3	2	...	...	...	1	...	...	10	18	11	11	2	9	...	...	12	105	...	13	...	13	1	18	1,737	28	229	
...	...	14	2	...	...	4	1	...	...	39	5	39	11	5	39	...	...	32	627	7	285	...	66	8	59	1,095	224	1,244	
2	...	26	1	...	...	3	...	...	...	26	...	11	...	98	5	...	...	150	1	11	...	22	...	11	3	9,657	224	1,244	
...	...	5	...	12	...	...	...	...	...	...	...	...	...	2	...	...	...	9	1	...	...	1	...	...	...	326	...	370	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1,583	1	30	
53	...	406	41	28	1	85	23	4	...	845	125	581	145	343	681	1	...	1,729	10,600	566	1,743	97	247	238	1,065	4,976	153,933	1,767	19,647

TABLE VII.—GLASGOW, 1905.—DEATHS CERTIFIED AND OTHERWISE IN EACH MUNICIPAL WARD.

MUNICIPAL WARDS.	DEATHS CERTIFIED AND OTHERWISE.										DEATHS UNDER 5 YEARS.				LEGITIMATE.				ILLEGITIMATE.			
	Certified.		Not Certified.		No Medical Attendance.		Dispensary.		Under 1 year.		1 and under 5 years.		Under 1 year.		1 and under 5 years.		Under 1 year.		1 and under 5 years.			
	Under 5 yrs.	5 yrs. & up.	Under 5 yrs.	5 yrs. & up.	Under 5 yrs.	5 yrs. & up.	Under 5 yrs.	5 yrs. & up.	Number.	Certified.	Number.	Certified.	Number.	Certified.	Number.	Certified.	Number.	Certified.	Number.	Certified.		
1. Dalmarnock, ...	471	504	...	...	8	1	...	...	284	276	195	195	252	244	180	32	15	32	15			
2. Calton, ...	317	427	7	8	9	2	...	1	190	175	143	142	163	150	133	27	9	25	9			
3. Mile-end, ...	408	445	2	4	7	2	...	...	220	212	199	196	201	193	185	19	11	19	11			
4. Whitevale, ...	280	346	...	...	2	1	...	1	160	154	129	126	146	141	121	14	5	13	5			
5. Dennistoun, ...	136	275	2	...	2	...	...	...	79	74	62	62	74	69	62	5	...	5	...			
6. Springburn, ...	378	347	...	2	4	...	...	...	220	214	164	164	202	197	158	18	6	17	6			
7. Cowliars, ...	216	255	1	1	5	3	...	...	136	129	87	87	120	113	82	16	5	16	5			
8. Townhead, ...	296	403	2	5	5	4	...	...	180	170	127	126	152	144	122	28	5	26	4			
9. Blackfriars, ...	179	261	4	2	3	4	...	...	111	102	79	77	86	82	69	25	8	20	8			
10. Exchange, ...	10	28	...	...	...	...	...	...	5	5	6	5	2	2	4	3	1	3	1			
11. Blythswood, ...	8	30	...	...	...	...	...	...	7	7	1	1	4	4	1	3	...	3	...			
12. Broomielaw, ...	57	105	1	2	1	3	...	...	32	30	28	27	28	28	27	4	...	2	...			
13. Anderston, ...	253	282	...	...	6	...	...	...	153	146	107	107	141	135	101	12	...	11	...			
14. Sandyford, ...	173	269	1	...	...	1	...	1	99	95	78	78	81	79	74	18	6	16	4			
15. Park, ...	39	220	...	2	1	...	...	...	23	22	17	17	20	19	16	3	1	3	1			
16. Cowcaddens, ...	326	434	...	6	14	10	...	3	209	188	138	138	169	155	128	40	10	33	10			
17. Woodside, ...	259	365	1	1	3	2	...	...	163	158	101	101	150	145	96	13	5	13	5			
18. Hutchesontown, ...	368	423	2	7	2	...	...	...	205	200	170	168	185	181	164	20	6	19	6			
19. Gorbals, ...	233	367	4	1	4	...	...	1	126	118	117	115	107	100	110	19	7	18	7			
20. Kingston, ...	221	359	1	1	7	...	...	...	135	126	109	105	120	112	104	15	5	14	5			
21. Govanhill, ...	208	253	...	...	1	1	...	...	119	118	90	90	113	112	87	6	3	6	3			
22. Langside, ...	51	260	...	1	...	1	...	...	28	28	23	23	28	28	22	...	1	...	1			
23. Pollokshields, ...	19	130	...	4	...	...	...	...	11	11	8	8	9	9	8	2	...	2	...			
24. Kelvinside, ...	32	114	...	...	1	...	...	...	21	20	12	12	19	19	11	2	...	1	...			
25. Maryhill, ...	258	287	3	...	4	...	...	...	160	155	105	103	141	136	100	99	1	19	4			
— Institutions and Harbour, ...	130	945	1	15	...	14	...	...	85	84	46	46	42	42	35	43	11	42	11			
CITY, ...	5,336	8,134	32	68	89	47	45	7	3,161	3,017	2,341	2,319	2,755	2,639	2,211	406	130	378	128			

TABLE VIII.—GLASGOW, 1905.—DEATHS in FRIENDLY SOCIETIES in each MUNICIPAL WARD.

MUNICIPAL WARDS.	Under 1 Year.		1 and under 5 Years.		5 Years and over.	TOTAL.
	Legitimate.	Illegitimate.	Legitimate.	Illegitimate.		
1. Dalmarnock, ...	139	7	163	5	444	758
2. Calton, ...	65	5	100	4	352	526
3. Mile-end, ...	93	3	156	4	383	639
4. Whitevale, ...	79	3	87	1	278	448
5. Dennistoun, ...	17	1	48	...	210	276
6. Springburn, ...	90	1	129	5	289	514
7. Cowlands, ...	60	2	67	1	215	345
8. Townhead, ...	86	5	100	1	329	521
9. Blackfriars, ...	31	...	49	3	185	268
10. Exchange, ...	1	...	3	1	18	23
11. Blythswood, ...	2	1	1	...	17	21
12. Broomielaw, ...	15	...	22	...	72	109
13. Anderston, ...	65	2	83	1	219	370
14. Sandyford, ...	44	2	56	1	183	286
15. Park, ...	8	...	9	...	90	107
16. Cowcaddens, ...	74	2	90	4	320	490
17. Woodside, ...	60	4	77	...	270	411
18. Hutchesontown, ...	92	4	136	4	353	589
19. Gorbals, ...	38	3	76	4	270	391
20. Kingston, ...	45	3	83	...	273	404
21. Govanhill, ...	49	1	67	3	193	313
22. Langside, ...	6	...	14	...	48	68
23. Pollokshields, ...	4	...	3	...	33	40
24. Kelvinside, ...	2	...	1	...	6	9
25. Maryhill, ...	56	3	74	1	214	348
— Institutions and Harbour, ...	7	...	4	2	341	354
CITY, ...	1,228	52	1,698	45	5,605	8,628

TABLE IX.—SHOWING HOSPITAL BED ACCOMMODATION for INFECTIOUS DISEASES
in GLASGOW since 1865.

YEAR.	PARISH.			Glasgow Royal Infirmary.	LOCAL AUTHORITY.				Total Beds.	Population in Thousands.	Beds per Thousand.
	City.	Barony.	Govan.		Parlia- mentary Road.	Belvi- dere Fever.	Belvidere Small- pox.	Ruchill.			
1865	100	120	54	200	136	...	...	...	610	428	1·4
1866	100	120	54	175	136	...	...	...	585	438	1·3
1867	...	120	54	100	136	...	...	...	410	446	0·9
1869	...	120	54	135	136	...	...	...	445	464	1·0
1870	...	120	54	100	250	250	...	...	774	471	1·7
1872	...	120	...	100	250	250	...	...	720	495	1·4
1875	...	...	...	100	250	250	...	...	600	500	1·2
1876	...	...	...	...	250	250	...	...	500	502	1·0
1878	...	...	...	...	120	250	150	...	520	507	1·0
1880	...	...	...	...	120	250	150	...	520	510	1·0
1881	...	...	...	...	120	370	150	...	640	512	1·2
1882	...	...	...	...	120	220	150	...	490	518	1·0
1887	...	...	...	...	120	390	150	...	660	545	1·2
1893	...	...	...	...	200	390	150	...	740	644	1·1
1900	...	...	...	...	200	390	150	440	1,180	755	1·6
1901	...	...	...	...	200	390	235	440	1,265	798	1·6

In addition to the above, 5 temporary pavilions, with accommodation for 75 beds, erected at Belvidere during the smallpox epidemic of 1900-01, are available.

Parliamentary Road Hospital was closed in November, 1901, and has since only been in occasional and part use for Reception-house purposes. In September, 1904, two pavilions, each containing two wards of 16 beds (or 64 beds in all), were removed from the north-east corner of the site in order to allow the erection of the new Baird Street Reception-house.

TABLE X.—CITY of GLASGOW FEVER and SMALLPOX HOSPITALS.—NUMBER, AVERAGE RESIDENCE, and COST of TREATMENT OF PATIENTS from 1883-84.

Year.	PATIENTS.			Total Ordinary Expenditure.			Average Daily Cost per Patient.			Average Cost of Treatment per Patient.			Average Cost of Bed per Year.		
	Total under Treatment.	Average Daily Number in Hospitals.	Average Residence in Days.												
				£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
1883-84	3,200	338	41·7	15,772	0	0	0	2	6·6	5	6	4·0	46	10	9·0
1884-85	3,828	355	38·1	19,754	6	7	0	2	11·0	5	11	1·5	53	4	7·0
1885-86	2,154	215	40·3	15,550	6	6	0	3	11·5	7	19	6·2	72	4	9·5
1886-87	2,993	332	43·3	16,504	3	5	0	2	8·7	5	17	11·9	49	14	7·5
1887-88	3,056	327	42·5	17,768	17	10	0	2	11·6	6	6	1·0	54	5	9·6
1888-89	3,459	357	41·7	18,171	15	6	0	2	9·5	5	16	4·9	50	18	11·5
1889-90	3,582	361	36·8	17,899	7	3	0	2	8·6	4	19	11·7	49	11	7·0
1890-91	4,286	460	39·2	21,092	15	11	0	2	6·1	4	18	5·9	45	17	0·7
1891-92	4,850	491	37·1	26,808	9	7	0	2	11·8	5	10	8·2	54	11	10·8
1892-93	6,749	699	37·8	36,263	18	8	0	2	10·1	5	7	5·4	51	17	6·1
1893-94	5,528	624	41·2	34,551	14	3	0	3	0·5	6	5	2·6	55	9	3·5
1894-95	5,482	644	42·9	34,039	19	0	0	2	10·8	6	4	2·2	52	17	3·4
1895-96	5,127	651	46·5	34,892	12	8	0	2	11·1	6	16	1·5	53	11	5·6
1896-97	5,468	627	41·9	34,224	14	9	0	2	11·9	6	5	2·5	54	11	0·5
1897-98	5,687	709	45·5	36,972	18	10	0	2	10·3	6	10	0·3	52	3	5·7
1898-99	5,956	833	45·3	39,261	9	2	0	2	7·0	5	16	11·8	47	2	7·3
1899- 1900 }	6,663	923	44·8	42,020	9	11	0	2	5·9	5	11	10·0	45	10	8·2
1900-01	8,888	1,031	42·3	69,015	8	6	0	3	8·0	7	15	1·9	66	18	9·8
1901-02	6,990	772	40·3	64,265	12	10	0	4	6·7	9	3	10·6	83	5	0·1
1902-03	4,882	592	44·3	53,185	12	10	0	4	11·1	10	17	10·6	89	17	2·8
1903-04	6,799	720	38·8	55,961	2	10	0	4	3·0	8	4	9·6	77	14	7·0
1904-05	5,484	576	36·3	52,558	11	4	0	5	0·0	9	1	5·0	91	5	0·0
1905-06	5,902	620	38·3	52,052	12	7	0	4	7·2	8	16	2·2	83	19	0·0

N. B.—The above calculations of cost do not include interest on capital expended in erecting Hospitals.

TABLE XI.—CITY of GLASGOW FEVER and SMALLPOX HOSPITALS.—STATEMENT showing PATIENTS CLASSIFIED as to DISEASE, AVERAGE RESIDENCE, and AVERAGE COST per PATIENT for each YEAR from 1883-84.

Year.	SCARLET FEVER.		ENTERIC FEVER.		WHOPPING-COUGH.		TYPHUS.		MEASLES.		OTHER INFECTIOUS DISEASES.*		SMALLPOX.		ALL OTHER DISEASES.†	
	Average Resi- dence (Days).	Average Cost per Patient.	Average Resi- dence (Days).	Average Cost per Patient.	Average Resi- dence (Days).	Average Cost per Patient.	Average Resi- dence (Days).	Average Cost per Patient.	Average Resi- dence (Days).	Average Cost per Patient.	Average Resi- dence (Days).	Average Cost per Patient.	Average Resi- dence (Days).	Average Cost per Patient.	Average Resi- dence (Days).	Average Cost per Patient.
1883-84	51.7	£ s. D. 6 11 10.0	44.4	£ s. D. 5 13 2.6	58.9	£ s. D. 7 10 2.3	35.8	£ s. D. 4 11 3.5	34.8	£ s. D. 4 8 8.9	...	£ s. D. ...	27.5	£ s. D. 3 10 1.5	26.4	£ s. D. 3 7 3.8
1884-85	50.2	7 6 5.0	45.1	6 11 6.5	44.4	6 9 6.0	35.2	5 2 8.0	30.6	4 9 3.0	...	...	19.2	2 16 0.0	22.0	3 4 2.0
1885-86	54.7	10 16 6.2	46.6	9 4 5.5	36.2	7 3 3.5	31.5	6 4 8.2	26.2	5 3 8.5	24.7	4 17 9.2	24.1	4 15 4.7	21.8	4 6 3.5
1886-87	56.1	7 12 10.5	48.7	6 12 8.5	44.3	6 0 8.6	31.3	4 5 3.5	29.5	4 0 4.6	26.5	3 12 2.5	...	...	26.2	3 11 4.7
1887-88	55.2	8 3 9.1	50.3	7 9 2.7	42.1	6 4 10.7	33.2	4 18 5.9	22.2	3 5 10.3	29.0	4 6 0.4	16.5	2 8 11.4	21.3	3 3 2.3
1888-89	56.7	7 18 3.4	52.5	7 6 6.7	50.1	6 19 10.3	34.2	4 15 5.7	26.6	3 14 3.1	28.3	3 19 0.0	18.5	2 11 7.7	23.9	3 6 8.6
1889-90	54.4	7 7 9.4	50.2	6 16 4.5	53.0	7 3 11.8	34.9	4 14 9.7	30.6	4 3 1.6	21.4	2 18 1.6	24.0	3 5 2.4	22.5	3 1 1.5
1890-91	54.3	6 16 5.1	49.0	6 3 1.3	40.3	5 1 3.0	32.4	4 1 4.9	25.4	3 3 9.8	25.2	3 3 3.8	24.0	3 0 3.6	25.4	3 3 9.8
1891-92	53.7	8 0 2.5	49.3	7 7 0.9	43.8	6 10 10.0	31.3	4 13 4.5	26.2	3 18 2.0	22.9	3 8 3.8	38.0	5 13 4.4	20.8	3 2 0.6
1892-93	50.6	7 3 10.0	49.1	6 19 6.8	42.6	6 1 1.1	32.8	4 13 2.8	26.1	3 14 2.3	20.0	2 16 10.2	30.0	4 5 3.3	20.2	2 17 5.0
1893-94	52.7	8 0 2.0	52.5	7 19 6.7	51.0	7 15 0.0	34.8	5 5 9.2	27.7	4 4 2.2	22.4	3 8 0.9	42.2	6 8 3.0	23.1	3 10 2.5
1894-95	57.4	8 6 3.2	51.8	7 10 0.6	61.0	8 16 8.4	34.8	5 0 9.6	27.7	4 0 2.8	26.2	3 15 10.7	30.4	4 8 0.7	27.1	3 18 6.0
1895-96	57.7	8 8 11.0	57.2	8 7 5.4	54.1	7 18 4.5	33.1	4 16 10.8	29.2	4 5 5.8	31.2	4 11 4.1	30.1	4 8 1.4	29.4	4 6 0.8
1896-97	58.1	8 13 8.0	55.3	8 5 3.6	53.5	7 19 11.0	28.8	4 6 1.1	29.3	4 7 7.0	32.6	4 17 5.4	31.5	4 14 1.9	28.1	4 3 11.9
1897-98	59.9	8 11 2.9	54.7	7 16 4.5	58.1	8 6 1.2	43.1	6 3 2.6	29.2	4 3 5.7	36.3	5 3 9.3	31.0	4 8 7.5	31.3	4 9 5.8
1898-99	58.7	7 11 7.1	55.4	7 3 0.8	54.9	7 1 9.3	35.7	4 12 2.3	29.6	3 16 5.3	33.8	4 7 3.5	...	...	29.6	3 16 5.3
1899- 1900	59.3	7 7 11.4	55.7	6 18 11.7	54.4	6 15 8.7	33.4	4 3 4.0	27.8	3 9 5.3	34.9	4 7 0.9	22.6	2 16 4.6	28.6	3 11 4.3
1900-01	58.7	10 15 3.7	56.7	10 7 11.7	51.1	19 7 5.2	33.2	6 1 9.3	26.0	4 15 4.4	38.7	7 1 11.4	28.1	5 3 0.9	30.0	5 10 0.5
1901-02	53.5	12 4 0.6	53.8	12 5 5.0	58.9	3 8 8.2	30.4	6 18 8.1	30.5	6 19 1.6	35.2	8 0 6.9	30.4	6 18 8.1	32.8	7 9 7.5
1902-03	57.9	14 5 1.3	51.6	12 14 1.0	60.8	14 19 4.7	44.0	10 16 8.0	31.6	7 15 7.2	35.5	8 14 9.7	26.1	6 8 6.3	31.4	7 14 7.4
1903-04	55.9	11 17 5.2	56.3	11 19 1.6	49.2	10 8 11.7	33.9	7 3 11.9	27.8	5 18 1.0	33.7	7 3 1.7	29.6	6 5 8.7	27.9	5 18 6.1
1904-05	54.3	13 11 5.0	57.3	14 6 5.0	43.4	10 17 0.0	32.0	8 0 0.0	27.0	6 15 0.0	34.5	8 12 5.0	27.3	6 16 5.0	29.2	7 6 0.0
1905-06	53.9	12 17 11.3	57.6	13 14 11.5	44.7	10 5 7.4	38.4	8 16 7.7	34.0	7 16 4.8	29.3	6 14 9.4	60.6	13 18 9.1	30.1	6 18 5.5

* Includes Erysipelas, Diphtheria, Chickenpox, and Puerperal Fever; prior to 1885-86 these are included in "Other Diseases."
 † Includes Nursing Mothers, besides persons sent in by mistaken Diagnosis.
 N.B.—The above Calculations do not include Interest on Capital expended in erecting Hospitals.

From p. 97 to here should be in 1905

City of Glasgow Fever and Smallpox Hospitals.

RETURN BY THE MEDICAL OFFICER OF HEALTH
Shewing Number, Average Residence, and Cost of Treatment of Patients,
1905-1906.

ORDINARY EXPENDITURE, as per Treasurer's Statement * :—

Fever Hospital, Belvidere, ...	£24,956 16 1
Smallpox Hospital, Belvidere, ...	1,252 4 5
Fever Hospital, Ruchill, ...	25,843 12 1
	<u>£52,052 12 7</u>

* The Ordinary Expenditure on all the Hospitals has been thrown together. There is a certain amount of community in the Expenditure which could not be unravelled without trouble quite out of proportion to any result.

Average daily number of Patients in Fever Hospital, Belvidere, ...	289
Average daily number of Patients in Smallpox Hospital, Belvidere, ...	29
Average daily number of Patients in Fever Hospital, Ruchill, ...	302
Average daily number of Patients in Hospitals, ...	<u>620</u>

	FEVER HOSPITAL.	BELVIDERE SMALLPOX HOSPITAL.	RUCHILL HOSPITAL.	TOTAL.
Patients remaining at 31st May, 1905, ...	360	24	278	662
Patients admitted during 1905-1906, ...	2,358	189	2,693	5,240
Total under Treatment, 1905-1906, ...	...	...	...	<u>5,902</u>
Average Residence, ...	...	...	38·3 days.	...
Average Daily Expenditure, ...	...	...	...	£142 12 2·39
Average Daily Cost per Patient, ...	...	...	...	0 4 7·20
Average Cost of Treatment per Patient.	...	...	...	8 16 2·16
Average Cost of Bed per Year, ...	...	...	...	83 19 0·00

STATEMENT SHEWING PATIENTS CLASSIFIED AS TO DISEASE, AVERAGE RESIDENCE IN EACH CASE SO FAR
AS DISMISSED UP TO 1st JULY, 1906, AND AVERAGE COST AT THE DAILY RATE GIVEN ABOVE—

DISEASE.	No. ADMITTED.	AVERAGE RESIDENCE.	AVERAGE COST.
Scarlet Fever, ...	767	53·9 days.	£12 7 11·28
Enteric Fever, ...	287	57·6 „	13 4 11·52
Whooping-cough, ...	303	44·7 „	10 5 7·44
Typhus Fever, ...	45	38·4 „	8 16 7·68
Measles, ...	2,129	34·0 „	7 16 4·80
Other Infectious Diseases,*	1,326	29·3 „	6 14 9·36
Smallpox, ...	3	60·6 „	13 18 9·12
All other Diseases,†	380	30·1 „	6 18 5·52
All Cases, ...	<u>5,240</u>		

* Includes Erysipelas, Diphtheria, Chickenpox, and Puerperal Fever.
† Includes Nursing Mothers, besides Persons sent in by mistaken diagnosis.

The above calculations of cost do not include Interest on Capital expended in erecting Hospitals.

A. K. CHALMERS.

SANITARY DEPARTMENT,
GLASGOW, 9th July, 1906.